



ELEMENTS of Advanced
KARATE

by **LESTER INGBER, Ph.D.**

ELEMENTS OF ADVANCED KARATE

by Lester Ingber, Ph.D.

Editor: Mike Lee Graphic Design: Karen Massad

Art Production: Junko Sadjadpour, Amy Goldman Koss Photography: Mario Prado

Copyright © 1985 Physical Studies Institute All rights reserved Printed in the United States of America Library of Congress Catalog Card Number: 84-62296 ISBN: 0-89750-127-6

WARNING

This book is presented only as a means of preserving a unique aspect of the heritage of the martial arts. Neither the publisher nor the author makes any representation, warranty or guarantee that the techniques described or illustrated in this book will be safe or effective in any self-defense situation or otherwise. You may be injured if you apply or train in the techniques of self-defense illustrated in this book, and neither the publisher nor the author is responsible for any such injury that may result. It is essential that you consult a physician regarding whether or not to attempt any technique described in this book. Specific self-defense responses illustrated in this book may not be justified in any particular situation in view of all of the circumstances or under the applicable federal, state or local law. Neither the publisher nor the author makes any representation or warranty regarding the legality or appropriateness of any technique mentioned in this book.

ACKNOWLEDGEMENTS



Appearing in this photograph are the individuals who also demonstrate the techniques which illustrate this book. From left to right they are: Louis Seitchik, Isamu Nakayama, the author, Mako Nakayama, Scott Ginaven, and Paul Fleck. I thank Paul Nakayama for helping to reorganize and rewrite the final manuscript.

ABOUT THE AUTHOR

Lester Ingber, Ph.D., physics, and karate instructor, has over 28 years of experience in each discipline. He is a seventh dan karate sensei, and president of Physical Studies Institute (PSI), a California nonprofit corporation whose studies span several activities, ranging from biological and physical sciences to physical body disciplines. He has founded and instructed karate classes at several universities where he was a theoretical physicist, as a student, a National Science Foundation Postdoctoral Fellow, and faculty member.

In 1968, Dr. Ingber accomplished the first scientific study of the physical principles operative in karate. This thesis was accepted by the Japan Karate Association and the All-American Karate Federation as one of the requirements for their prestigious Instructor's degree, which he became the first Westerner to receive. By 1970, he integrated these studies with research into yin and yang attention processes, creating a scientific and practical teaching methodology promoting efficient in-depth learning of all aspects of this martial art. These concepts were published in 1976, in *The Karate Instructor's Handbook* and in its 1981 revision, *Karate: Kinematics and Dynamics*. Dr. Ingber has also recently published in scientific journals the first biophysics theory of brain function that yields specific mechanisms to explain yin and yang processes. In part for this work, in 1985 he was recommended for a Senior Research Associateship by the National Research Council of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine.

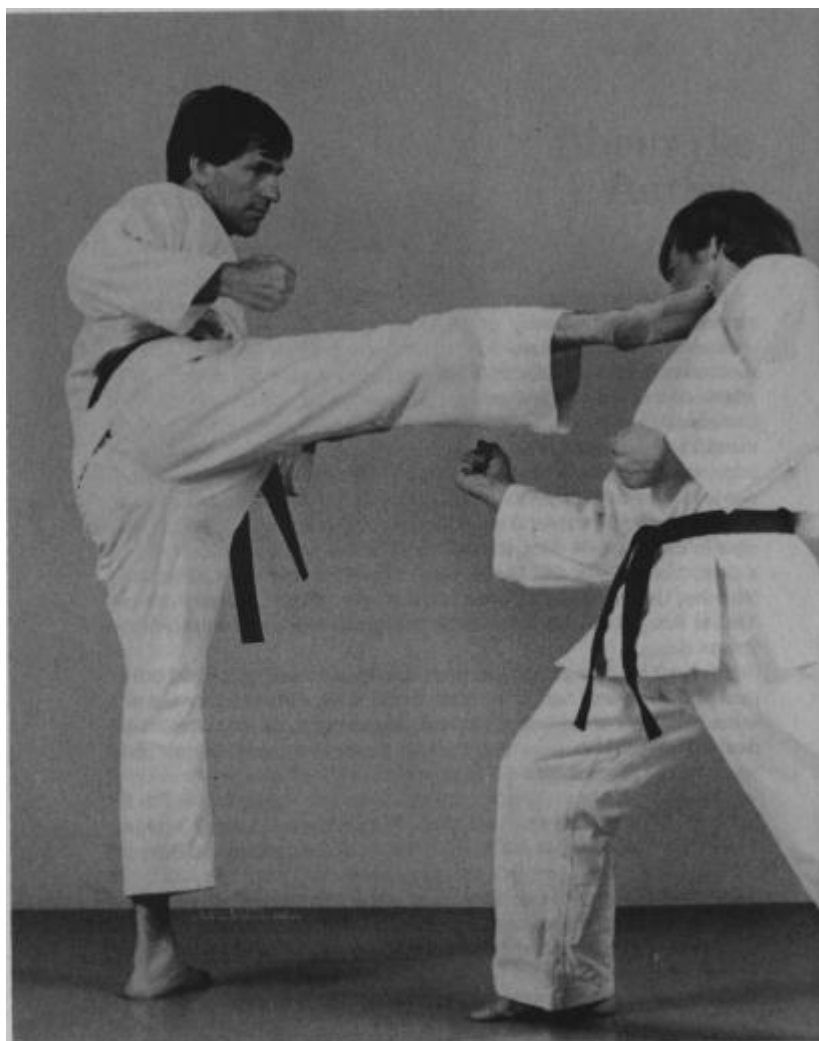


PREFACE

For a quarter of a century, I have striven to contribute scientific methodology to the study of physical, attentional and philosophical aspects of karate. I believe that students and teachers can best develop themselves only by attempting to contribute to the general welfare of their common environment, by developing a superior outlook for studying any discipline, and by developing better partners and competitors. Together, martial arts practitioners can research and expose defects in their art and improve previous methods and techniques. This has been the theme of my previous two books: *The Karate Instructor's Handbook* and *Karate: Kinematics and Dynamics*. This philosophy has also been the guiding principle in classes I have founded and taught at California Institute of Technology, University of California at San Diego, University of California at Berkeley, University of California at Los Angeles, State University of New York at Stony Brook, and since 1970, at Physical Studies Institute (PSI) in Solana Beach.

Elements of Advanced Karate presents a logical teaching method that is used at the Physical Studies Institute studio to give intermediate and advanced students a training in physical, attentional, and attitudinal skills that will make them more proficient in karate and, hopefully, in their other worldly pursuits.

Lester Ingber, Ph.D. Physical Studies Institute Solana Beach, California



CONTENTS

CHAPTER ONE Learning Karate

How to attempt a deeper and more advanced understanding of karate as an art

CHAPTER TWO The Portable Karate Workout

Training exercises and their applications using advanced technique combinations from standing positions, sitting positions, and lying on the floor

CHAPTER THREE Feinting

Training to execute and organize feints, including feinting techniques, and drill combinations with their practical applications

CHAPTER FOUR Thematic Elements of Sparring

An advanced approach to sparring strategies through training in the use of themes: earth, fire, water, air, and void

CHAPTER FIVE The Physical Reality of Yin and Yang

Karateka use their intuitions of yin and yang to improve themselves -- now there is evidence of the physical existence of yin and yang



CHAPTER ONE

LEARNING KARATE

At some point in a karate student's training, usually designated by the achievement of a first-dan black belt, he finally can execute his school's required punching, kicking, striking, and blocking techniques. He can correctly use the principles of stance, hip dynamics and body coordination. In addition, some skill has been gained in performing combinations, because there is an understanding of some of the subtleties involved in making smooth transitions between techniques. At this level, the student is more than ever acutely aware of the necessity of developing his skills beyond simple performance of the standard techniques, in order to interact or spar more effectively with better opponents. More precisely, it becomes necessary to apply the essence of karate skills, gained through disciplined practice of a basic repertoire of techniques, to more spontaneous demanding situations. To become proficient in these advanced skills, training for them should have begun at green belt level, so that by black belt level they can become a natural part of one's karate language. However, this advanced training of intermediate students must be given at their appropriate level, without sacrificing the purity of disciplined technique necessary to build a strong base. This book discusses the specific classifications of advanced skills necessary to engage in the truly demanding practice of karate.

To be sure, there are different methods of teaching good technique and principles of karate. However, it's been my experience in teaching karate and academics, that teaching methods good for helping students acquire basic skills are not necessarily good at preparing students to become creative in the subject. In karate, creativity is required in free-sparring.

For example, teaching a new student of a foreign language to memorize a list of vocabulary words does not really prepare him to converse, read, or write in that language. The sense of idioms, sentences, and paragraphs can be acquired by the trial and error experience of repeatedly attempting advanced activities with others already competent in the subject. This usually is a painful method, especially for an adult, to learn a foreign language. This particularly includes the body language of karate! In academics and the fine arts much research and experience is finally producing a curriculum that tends to do a better job in preparing students to engage in their future professions.

I believe that a good teaching method should have at least three constraints:

1. The method should teach the details of the subject correctly. In karate, this means that punches, kicks, blocks, and strikes should be properly presented, using correct stances, hip dynamics, and arm and leg coordination.
2. The method should also teach the process by which the person interacts with the subject. This is more subtle, but just as important. Short term memory, roughly measured by how many different items you can remember simultaneously, is typically limited to five to nine items. To a new student of a language, a single word may already measure a single item. However, an item can also be an individual concept, e.g., as might be expressed by an entire paragraph. If there are only a handful of basic principles (seven plus or minus two) which are fundamental to all techniques in the subject, the student can acquire these principles immediately. The objective of good teaching stresses fundamental principles that "package" information to be processed as fewer individual items. These individual items may be at extreme branches of connected information, but if there are basic principles that permit easy access to the branches, then many items are readily accessible.
3. The method should demand creative input from the instructor. It is fair and proper to expect an instructor to be at least as diligent and creative in the most primitive processes of teaching as he expects his students to be in their learning. Otherwise, not only does an instructor lose perspective on what to expect from his students, but he soon loses motivation to teach. If the instructor can't insert his own human insights and feelings on the subject into the class, then this also is a loss to the students. It's reasonable enough to standardize a curriculum, but quite unreasonable to standardize an instructor! For example, merely requiring instructors to create combinations of techniques emphasizing proper principles of body and attention dynamics encourages him to insert his own feelings on karate.

It should not be surprising that basic principles exist in all disciplines, although it may not always be clear that there is one "best" set of such principles. A comprehensive set of principles consistent with the basic vocabulary can be quite abstract, but once learned, it offers the student a practical guide to perform

spontaneously and creatively. This is why I am committed to principles of physics and attention, scientifically tested fundamental principles of body movement and perception, as the base on which to organize the basic techniques of karate. And, of course, it is important to note that this method actually works with people ages five to 70. Nothing is left out in such training. Using these principles, I believe that the average student may learn basic karate in one-half to two-thirds the usual number of years. Furthermore, students thus trained do not suffer as severe a gap between acquisition of these techniques and their application to creative situations, such as free-sparring and self-defense.

In this book, I have continued to organize specific exercises in the same manner as my previous books *Karate Instructor's Handbook* and *Karate: Kinematics and Dynamics*, guided by fundamental principles inherent to body movement and mental dynamics. This enables the trained student to react spontaneously with a small set of feelings that can branch out to tens of thousands of explicit techniques. Chapter Two presents a portable karate workout that the intermediate or advanced student can take on the road, or adapt to keep in shape if injured. This chapter also serves to photo graphically review and summarize most of the basic techniques used in Chapters Three and Four.

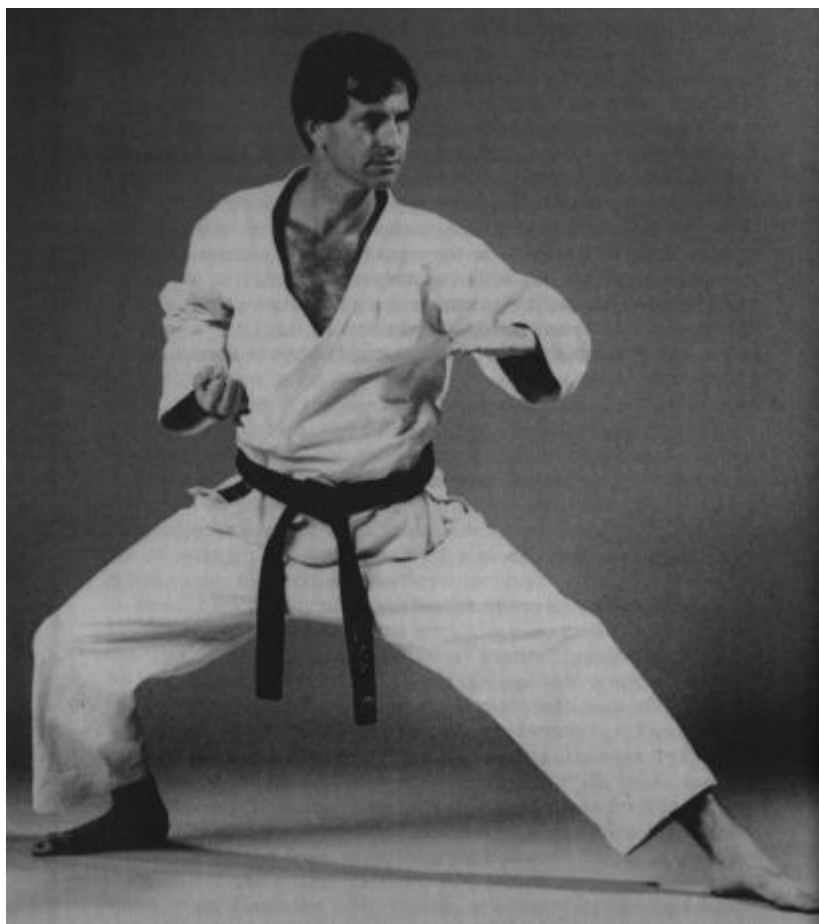
To advance beyond merely reacting to your opponent, you must acquire the ability to feint. A feint may be understood as the projection of an intended move (or pause) with sufficient authority to break your opponent's rhythm or to cause him to engage you, while you follow with a different combination of techniques to overcome his reaction to your movement (or sudden lack of movement). In Chapter Three, a new method is presented to teach an average student the body dynamics of feinting, using skills also practiced and required for the standard body techniques.

You must also be able to possess some variation in your theme or attitude of sparring, to most aptly engage variations in opponents: small or large, fast or ponderous, smooth or stochastic. In Chapter Four, an organization of some important variations is developed using the basic elements of Earth, Air, Fire, Water, and Void. These principles are similar to those presented by Miyamoto Musashi in his *The Book of Five Rings*, originally written in the 17th century. However, when dealing with attitudes and themes of sparring, these concepts are not as well researched, nor may they ever be as well defined. They are equally important to learn to become creative and expressive in any discipline. Therefore, I am committed to principles that have evolved over the centuries and have been demonstrated as being workable. These time-tested principles permit a comprehensive adoption of all karate techniques that are not too abstract for the average student and that are few enough to be used flexibly and spontaneously by a person's short-term memory.

Another important basic classification of interactions between opponents, are the elements of yin and yang. However, similar to the physical and thematic classifications developed in Chapters Three and Four, Chapter Five documents this interactive pair of elements as complicated attention processes of brain function that we all use to process all information. I have researched this for over 25 years, but only recently have I been able to develop a solid approach to this problem based on biophysics. In Chapter Five, I try to give the layperson some description of this recent research I've completed on yin and yang. In my previous books these ideas have already been tested and presented to describe an instructional method to teach students at all levels to use these principles as strategies in sparring.

Similar to some other karateka, and sometimes contrary to many others, I am dissatisfied with religious or metaphysical descriptions of body, attitudinal and attentional classifications. This is because they are not testable, and therefore fraught with misinterpretation and subject to the many opinions of as many teachers. Indeed, religious or metaphysical and moral views should be left to the individual to evolve for himself, as these will be strengthened with the previously mentioned skills. I am more willing to admit that some phenomena are as yet not clearly understood, than to seek a "quick fix" by metaphysical (mis)interpretations. However, as I have shown in my previous writings and classes, and as I try to develop here, not only is much explained by a scientific approach, but this approach also leads to specific teaching methods to help the average student become creative in the art.

My main point is not that other approaches are wrong or bad, but rather that a scientific approach has much merit and is particularly suited to many students. I believe that there can be many complementary approaches. For example, the traditional study of basic kata is an important aspect of karate training that presents a strong conservative base to maintain the purity and essence of good technique. Of course, all aspects of karate, including techniques in the kata, should always be open to scientific scrutiny.



CHAPTER TWO

THE PORTABLE KARATE WORKOUT

Regular training is essential to learn and keep active in karate. Everyone who trains regularly already knows what modern science is just establishing as bona fide fact: that regular workouts keep us in shape, help us to burn off stress, and help keep us in a positive state of mind to deal with our daily concerns. All these benefits are gained in addition to learning the discipline of karate.

Therefore it is quite disconcerting when any karateka, beginner or instructor, finds himself injured, out of town, or too busy to show up to class for his regular workout.

I always managed to train regularly while a student, but as the years went on, I became busier and busier, and injuries took longer and longer to heal. Finally, several years ago, I had a pretty severe ankle strain, or as one doctor put it, it was "the kind of injury that puts athletes behind desks." In a sense, he was correct, and it was a couple of years before I could spar regularly with my students. However, I managed to stay in pretty good shape by regularly working out, holding on to a chair for support, and using plenty of ice after each workout.

During this time I developed a workout to permit me to train despite any ordinary injury or handicap, and do so in just about any size room, even in the small space of a motel room. I still use this workout every once in awhile, because in just 20 or 30 minutes, it gives a good training in all the basic stances, punches, blocks, strikes, and kicks.

This workout consists of doing a series of two-step combinations of hand-leg techniques, alternating striking and thrusting movements within and between combinations. The number of times each combination is performed is determined by making sure that the total workout contains at least one thousand full techniques; for example, doing all the basic 26 kata accomplishes this. The usual workout consists of first doing a hand technique and then a leg technique. A harder workout, requiring better body timing, is obtained by first doing the leg technique, and then coming back to the required stance or position to perform the hand technique. Either way, each small combination gives practice in at least two techniques and the transition between them.

For the beginner, or even the intermediate student, some of these techniques may be somewhat difficult. Depending on your ability, you may alter these exercises or accept the challenge they present. Also, if you are injured, depending on your handicap, you may be forced to alter or skip some of these exercises. For example, when my ankle was injured, I performed all the standing exercises holding on to a chair with one hand.

Perform each of the following hand-leg combinations 15 times on each side (30 times each combination). They all begin in specified stances. For hand techniques designated with "counter" as in "counter-punch," use the arm of the opposite side as the forward leg. The beginning and end stances, or positions in the sitting and floor exercises, are the same. You must make smooth and strong transitions between all techniques, including the last transition to the end position of the combination (which becomes the starting position for the next combination).

In these exercises you will often find that the body feelings associated with some of these transitions are useful for studying similar transitions which often arise in sparring situations.

As mentioned, a somewhat more difficult workout is obtained by reversing the order of hand and leg techniques in each combination. At first you might try the workout as given, then try the reversed techniques for five of your 15 repetitions, and then occasionally do the reversed workout entirely.

In the sitting and floor groups of exercises, you must apply the concept of stance to situations where you are not ordinarily standing on the ground. When sitting, i.e., on a chair, this means you must incorporate the chair itself as a vital connection between your torso and the ground. During a hand technique, this means you must float forces across your legs through the chair as well as your torso; during a leg

technique, one or both hands must be used, pressing against the chair, to form tensions across the torso similar to those you normally would create using the legs. Similarly, when sitting or lying on the floor, the arms and the torso must often be pressed against the ground, to be used as an integral part of the stance.

Hip Dynamics in Executing Karate Techniques

In this book, the descriptions of arm and leg techniques are preceded by instructions on how to move your hips to execute the techniques. This is because in karate, much of the power behind your techniques come from the movement of your hips.

Arm Techniques for Striking

Thrusting your hips requires that your hip center be thrust along the line of power.

Rotating your hips requires that your hips be rotated about the center in the same direction as the elbow or knee of the technique.

Reverse-rotating your hips requires that your hips be rotated in the opposite direction as the elbow or knee of the technique.

Snapping your hips requires that you vibrate your hips about the center. Beginners and intermediates, use your pulling hand (the non-striking hand which is pulled toward the hips) to help the large "slow twitch" muscles in your torso vibrate your hips through a relatively small range of motion.

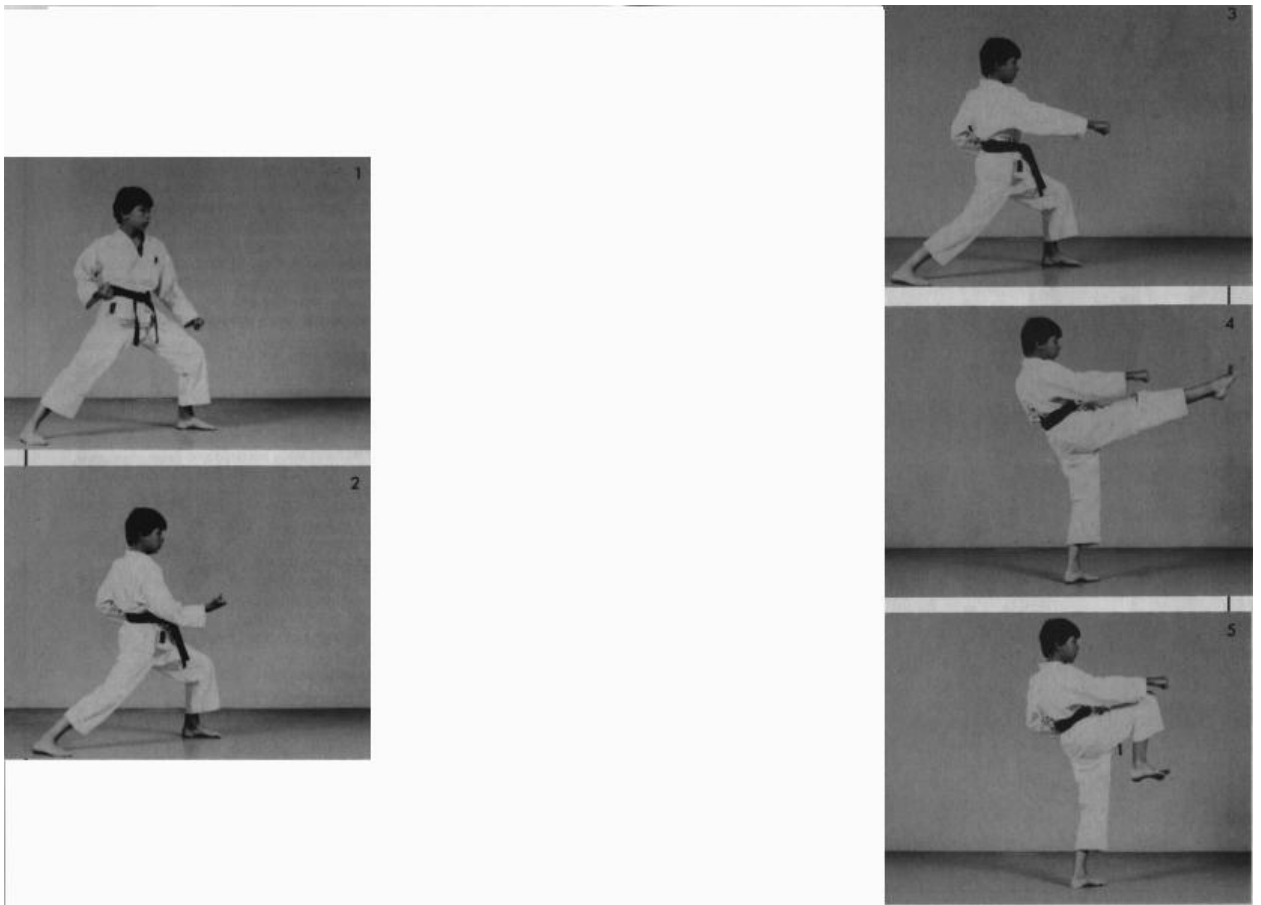
Leg Techniques for Kicking

Rotating your hips for kicks is similar to rotating them for arm techniques. Hip rotation is required for round kicks, crescent kicks, and wheel kicks.

Driving your hips contain components of both thrusting your hips along the line of power, but also rotating them about the solar plexus to propel the kick. Driving is required for front kicks, side kicks, and back kicks.

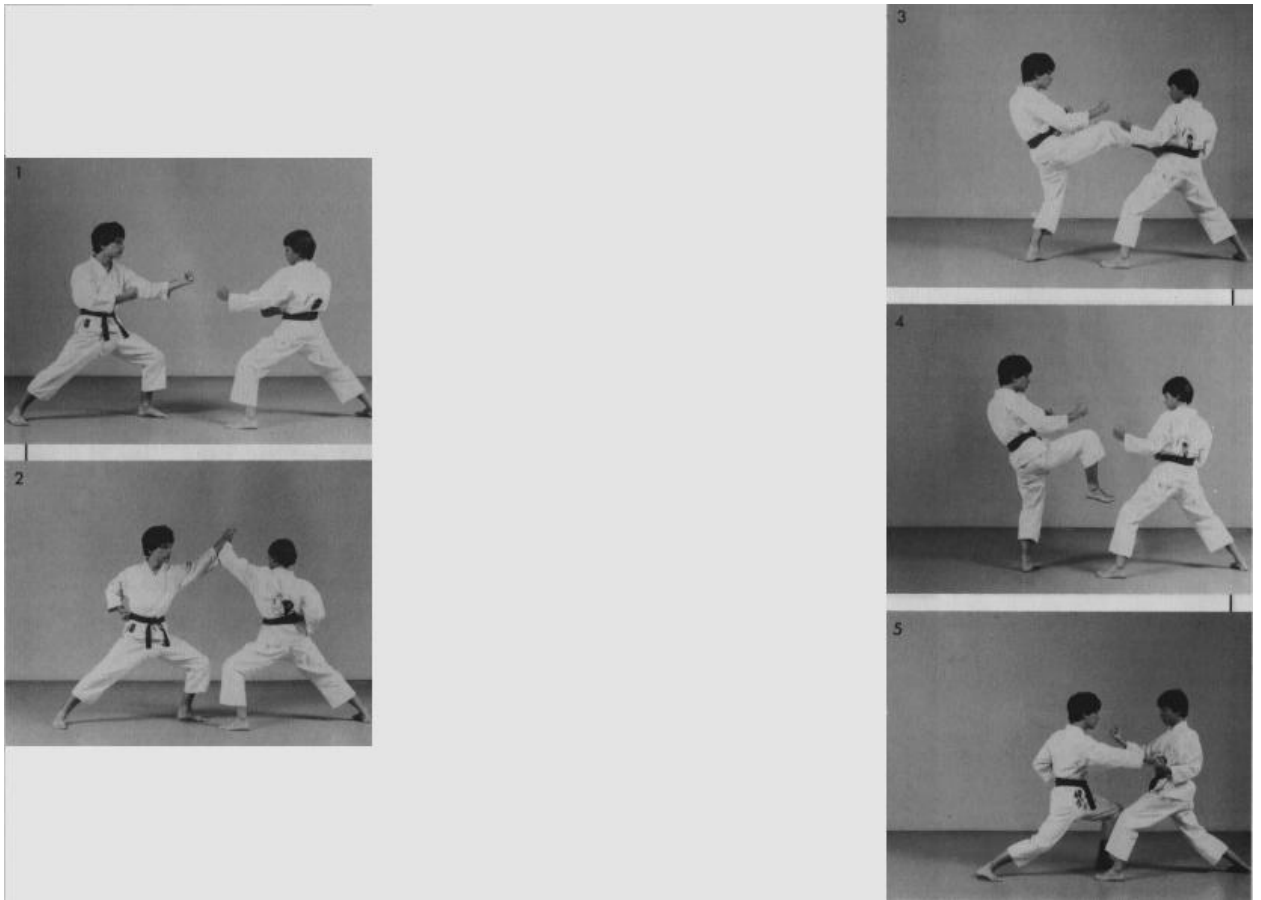
Furthermore, to emphasize lateral stepping or sliding into a new stance, I have used "side-shift" to specify the stepping leg cutting across the front of the body, and "circle-shift" to specify the stepping leg cutting around to the back of the body.

STANDING EXERCISES



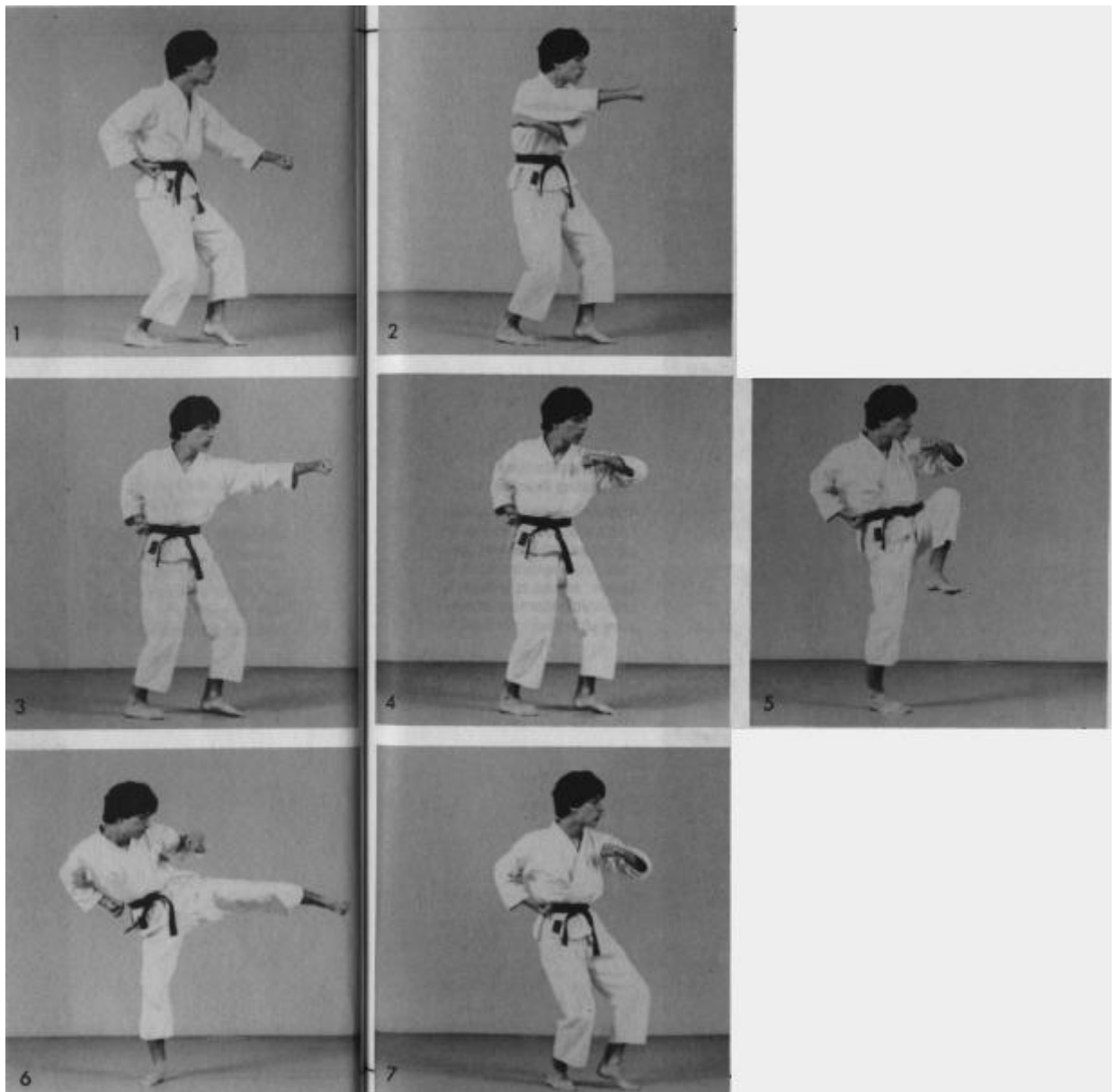
Standing Exercise No. 1

(1) From a front-stance ready-position, (2) rotate your hips to execute a counter-punch with your right hand. (3) At the focus of the punch, immediately (4) drive your hips to execute a front-snap-kick with your right leg. (5) Make sure to keep your hips and right leg moving toward the target in your follow-through until your right foot completes its snap back to center.



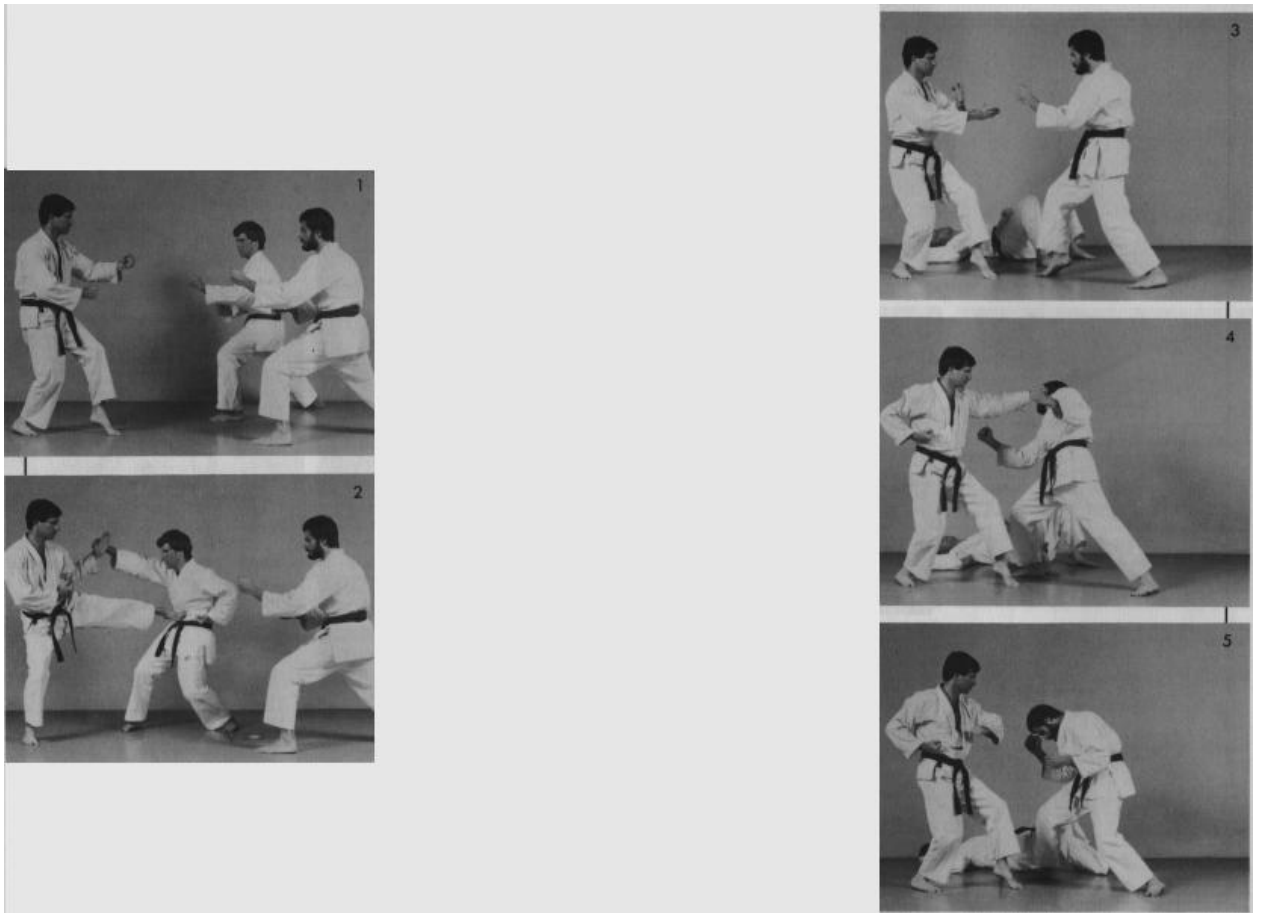
Application of Standing Exercise No. 1

(1) Facing the opponent, the defender (2) creates an opening by reverse-rotating his hips to execute a short-punch to the face. (3) Following up by driving his hips to execute a front-kick to the stomach, (4) he pulls back his leg, and (5) finishes off his attack by snapping his hips to execute a counter-punch to the stomach.



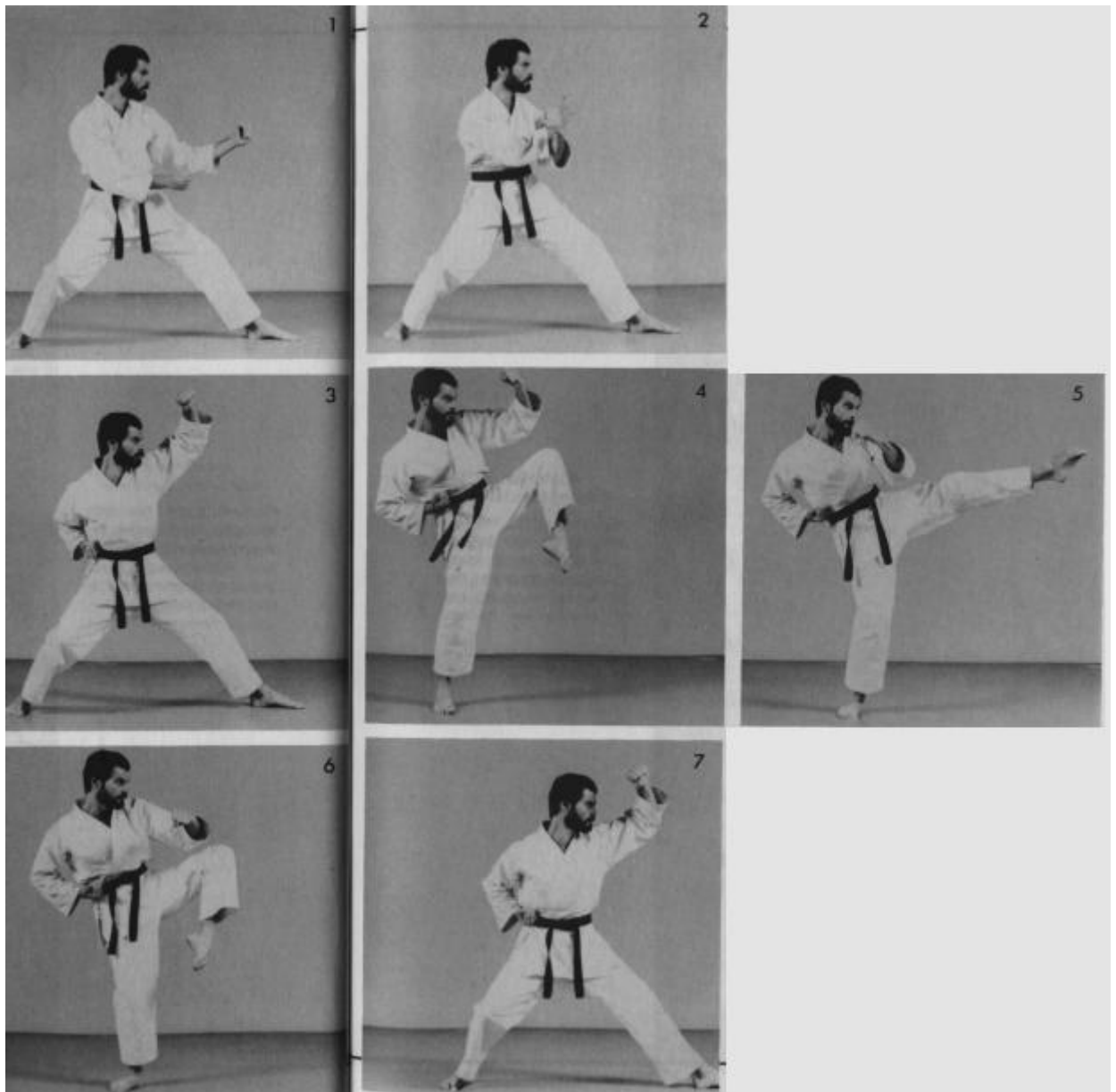
Standing Exercise No. 2

(1) Beginning in a cat-stance, (2) bring your striking hand through center, and (3&4) reverse-rotate your hips to execute a strike-snap with your left hand. (5) Bring your left leg through center, (6) drive your hips to execute a side-thrust-kick with your left leg, and (7) return to a cat-stance.



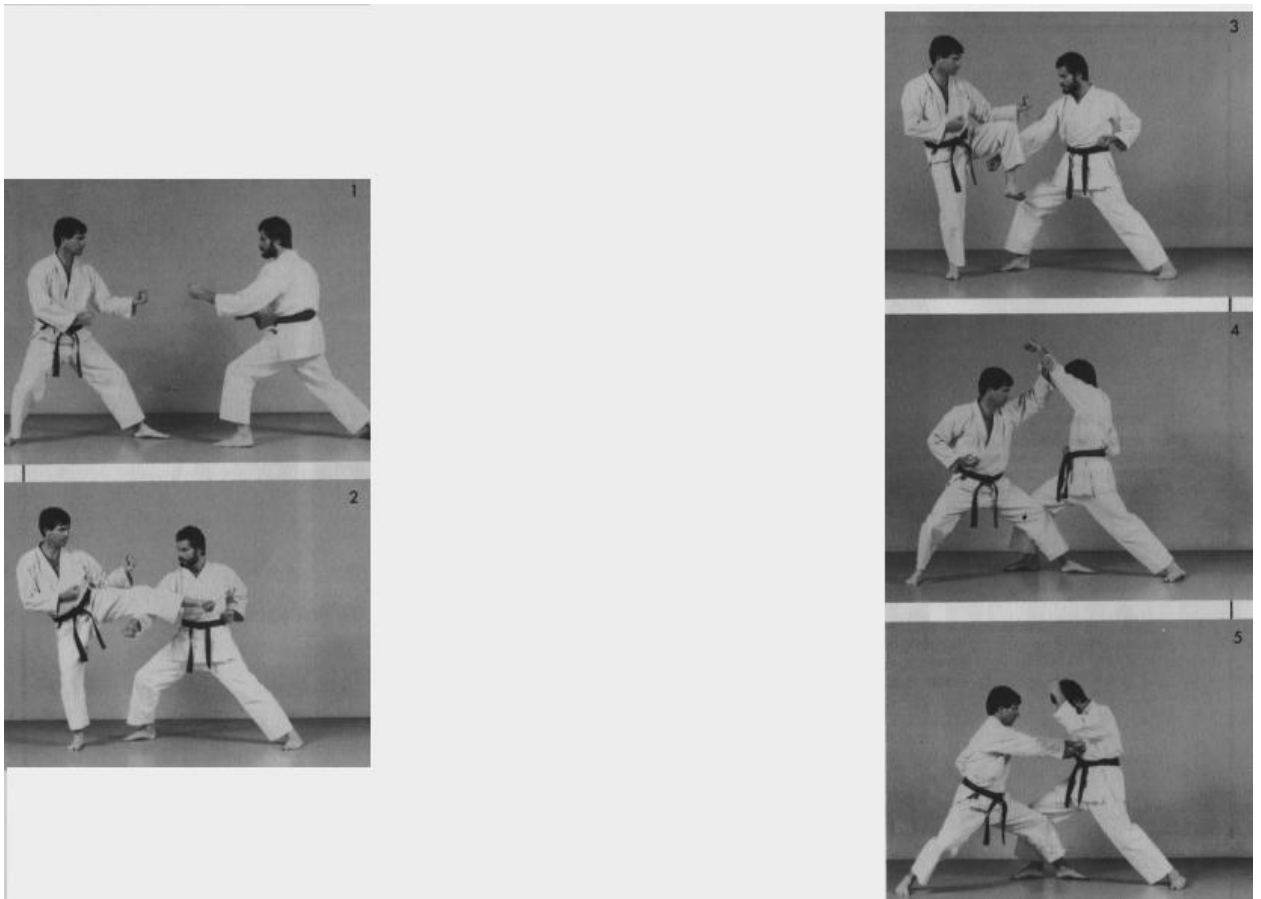
Application of Standing Exercise No. 2

(1) Facing two opponents in a cat-stance, the defender (2) rotates his hips to execute a sweep-block, and drives his hips to execute a side-thrust-kick to the opponent attacking from the left. (3&4) Bringing his arm through center to cover, he reverse-rotates his hips to execute a strike-snap against the other opponent, and (5) returns to a cat-stance.



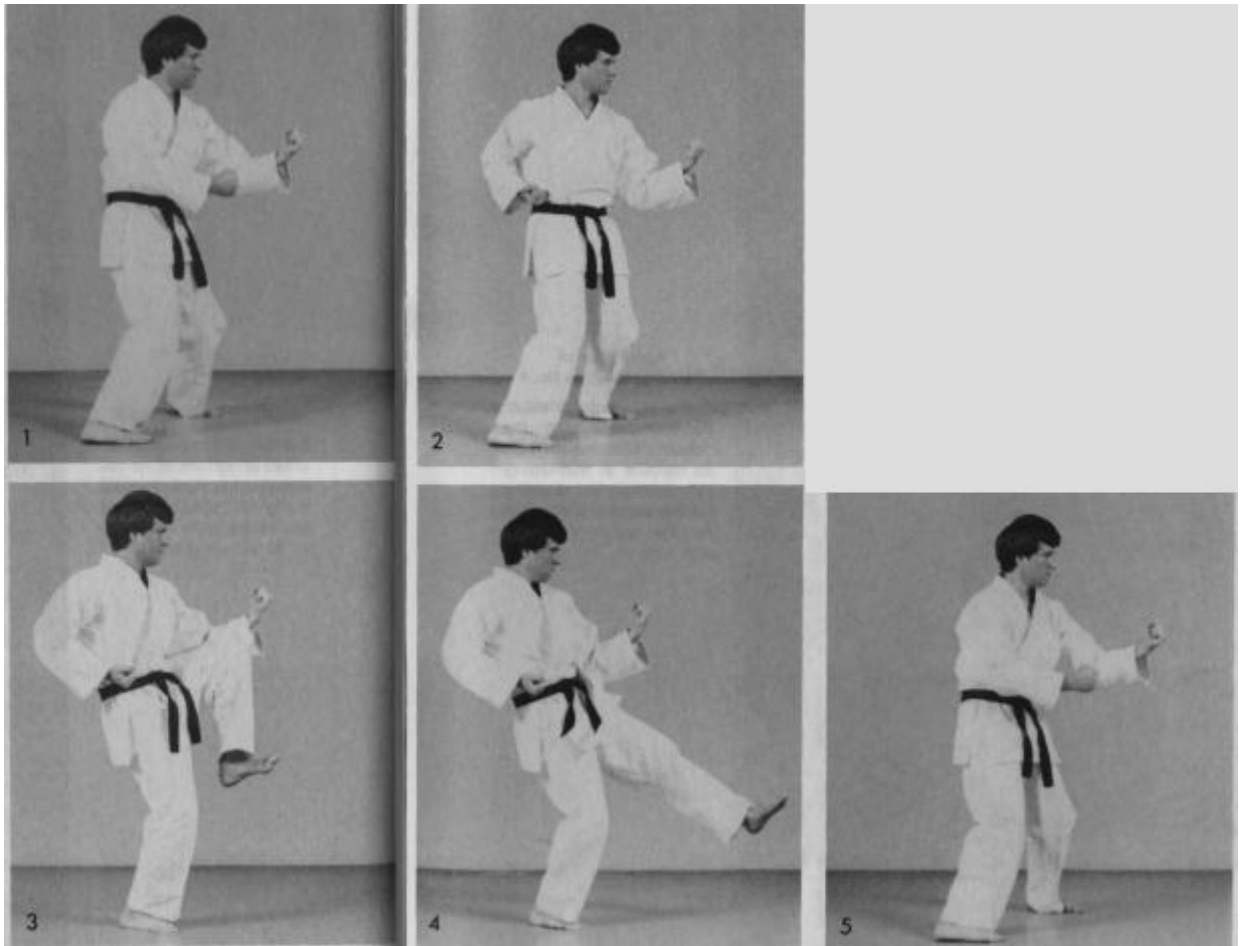
Standing Exercise No. 3

(1) Starting in a back-stance, (2&3) bring your left arm through center, and rotate your hips to execute an up-block. (4) Pull your left leg through the center, and (5&6) drive your hips to execute a side-snap-kick. (7) Return to a back-stance.



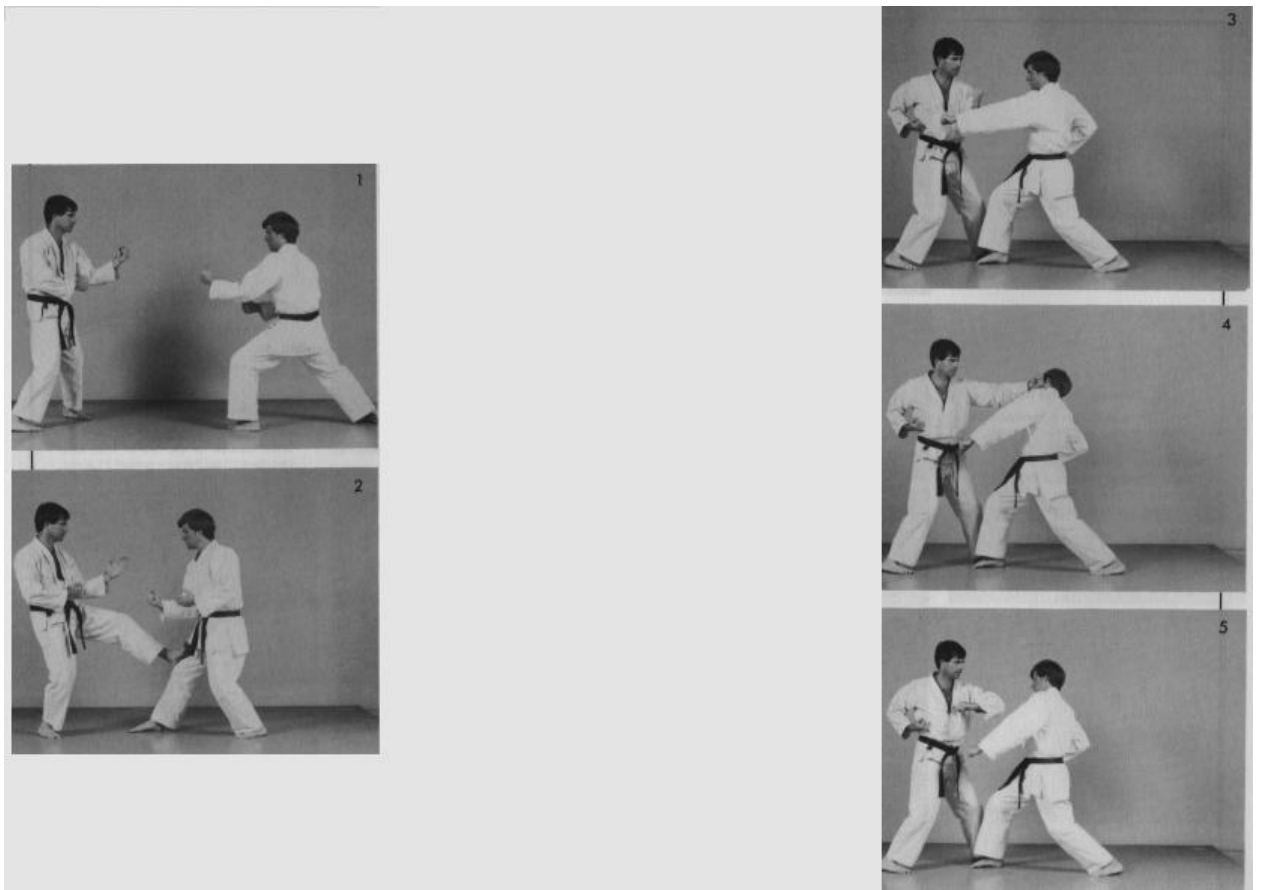
Application of Standing Exercise No. 3

(1) Facing an opponent in a back-stance, the defender (2&3) drives his hips to execute a side-snap-kick, then (4) reverse-rotates his hips to execute an up-block against a counter-punch aimed at his face. (5) He finishes in a back-stance by rotating his hips to execute a counter-punch.



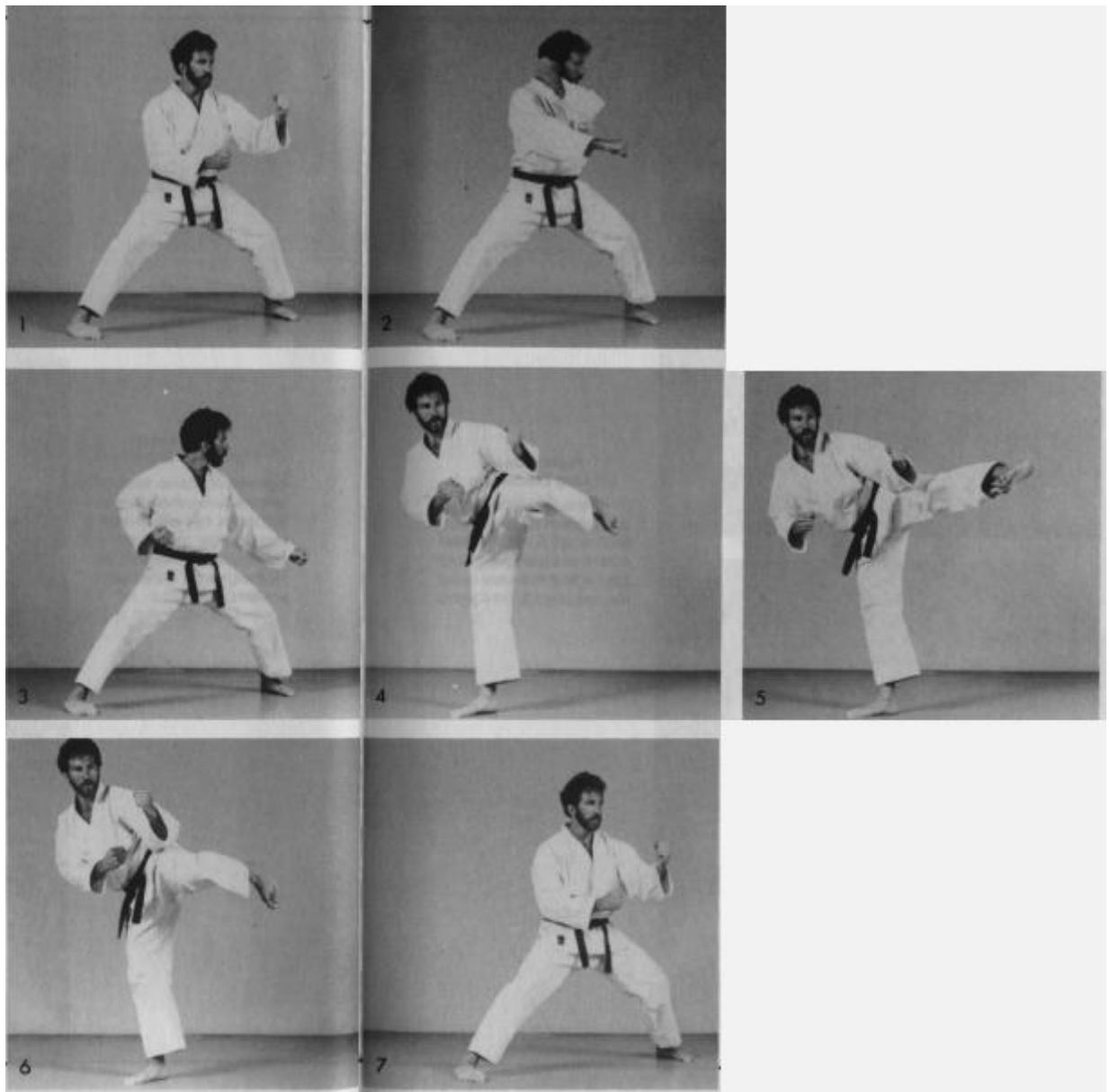
Standing Exercise No. 4

(1) From an hour-glass-stance, (2) rotate your hips to execute an outside-roundblock. (3) Pulling your left leg through center, (4) drive your hips to execute a heel-stomp-kick with your left leg, and (5) return to an hour-glass-stance.



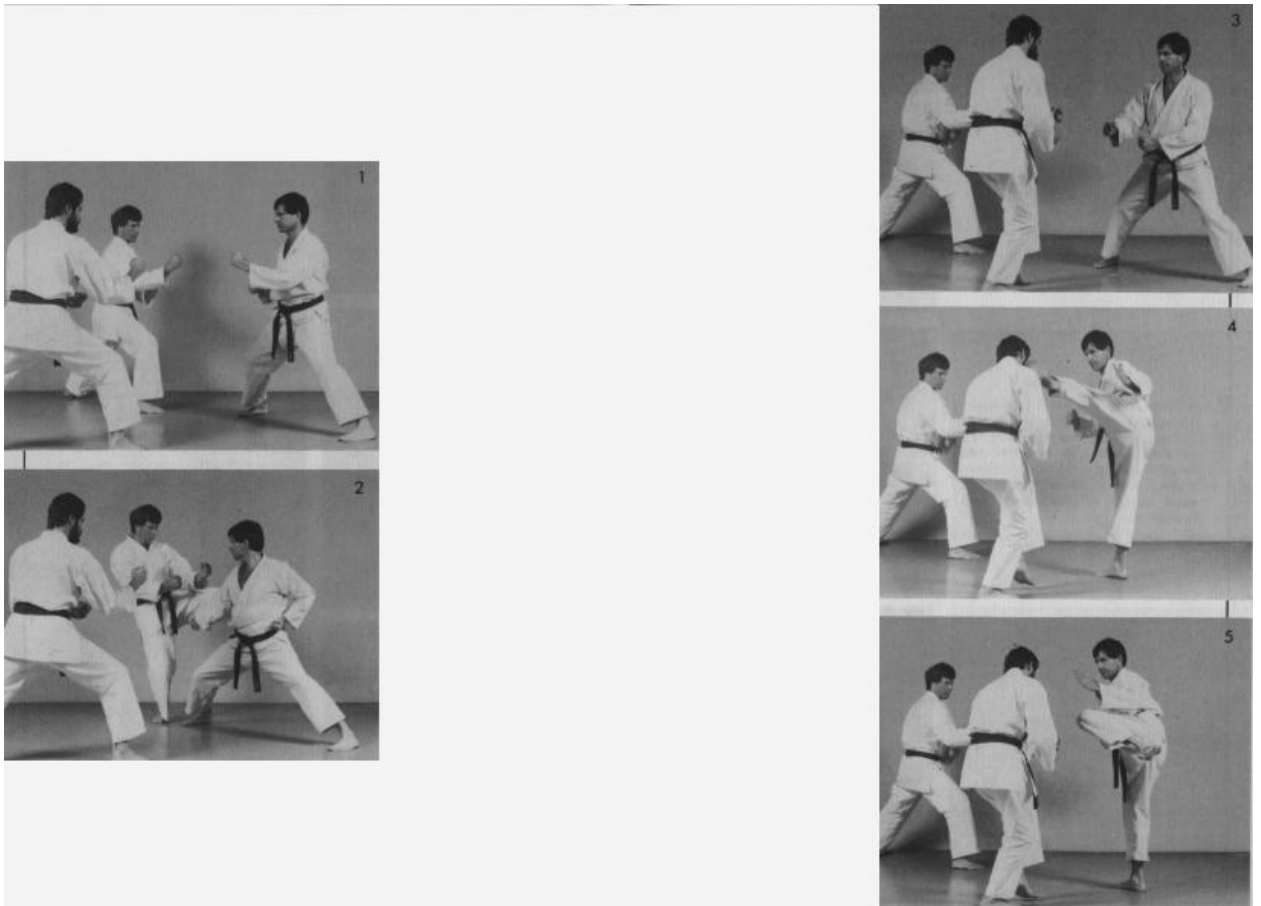
Application of Standing Exercise No. 4

(1) Facing his opponent in an hour-glass-stance, the defender (2) drives his hips to execute a heel-stomp-kick to the knee, stopping his opponent's charge. (3) As the opponent follows with a punch, the defender rotates his hips to execute an outside-round-block, and (4) follows by reverse-rotating his hips to execute a strike-snap to the face. (5) He then returns to his ready-position.



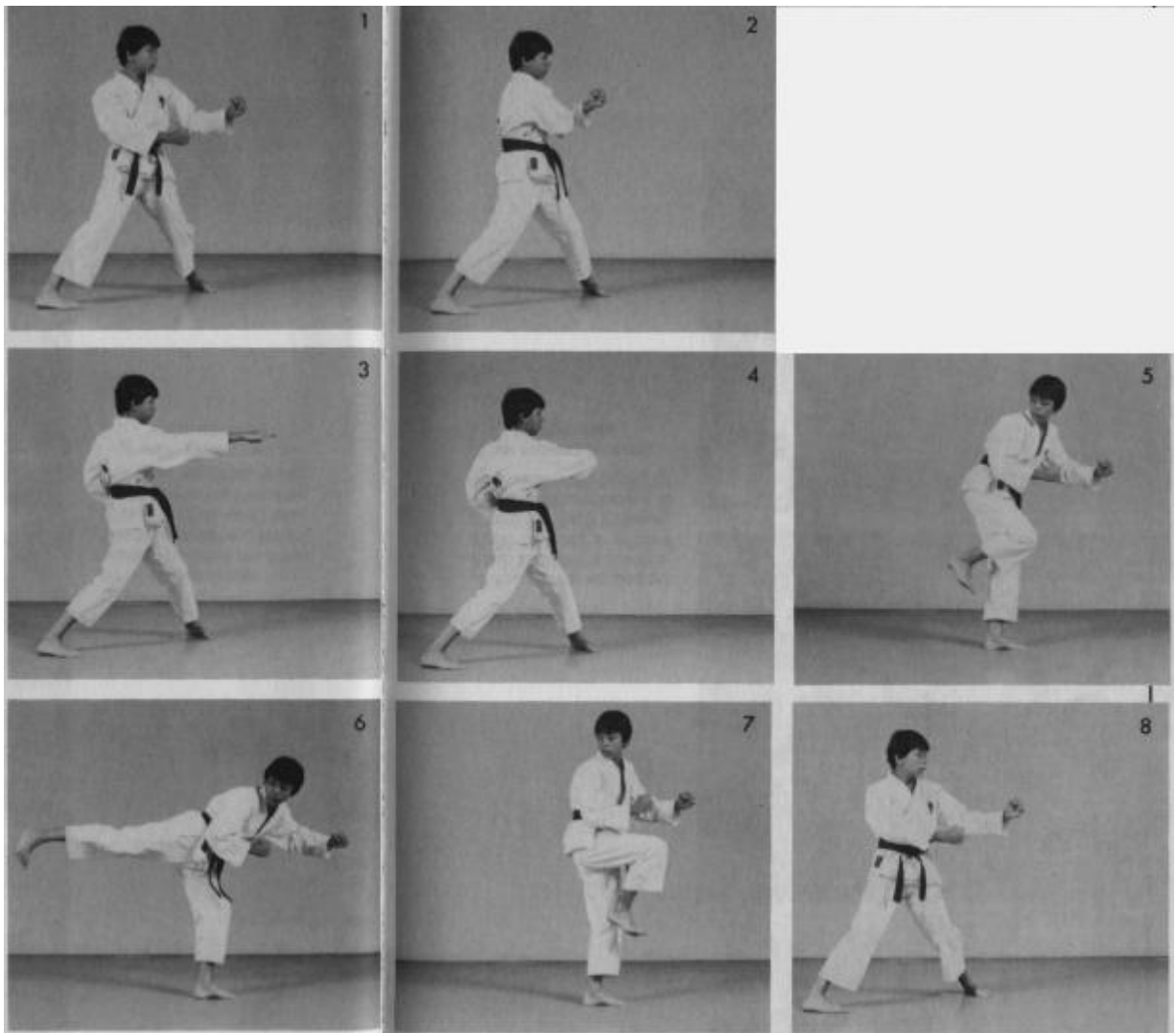
Standing Exercise No. 5

(1) From a side-stance ready-position, (2&3) bring your arm through center, and snap your hips to execute a down-block with your left hand. (4-6) Pull your leg through center, and rotate your hips to execute a round-snap-kick, and (7) return to a side-stance ready-position.



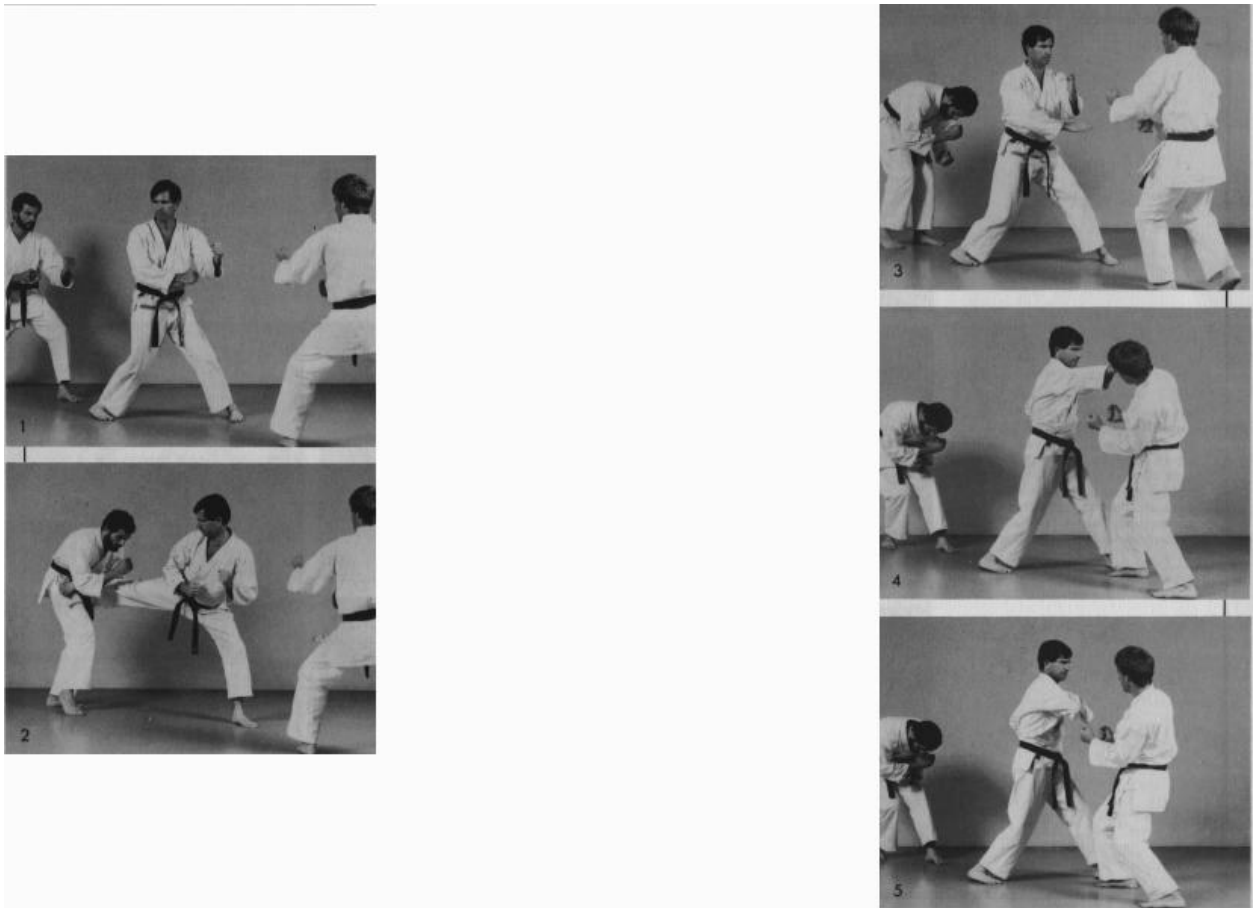
Application of Standing Exercise No. 5

(1) In a side-stance, facing two opponents, the defender (2) snaps his hips to execute a down-block against the front-thrust-kick from his opponent to the right. The defender (3) waits for the proper time to attack the front opponent, then (4&5) rotates his hips to execute a round-snap-kick to the face of the front opponent.



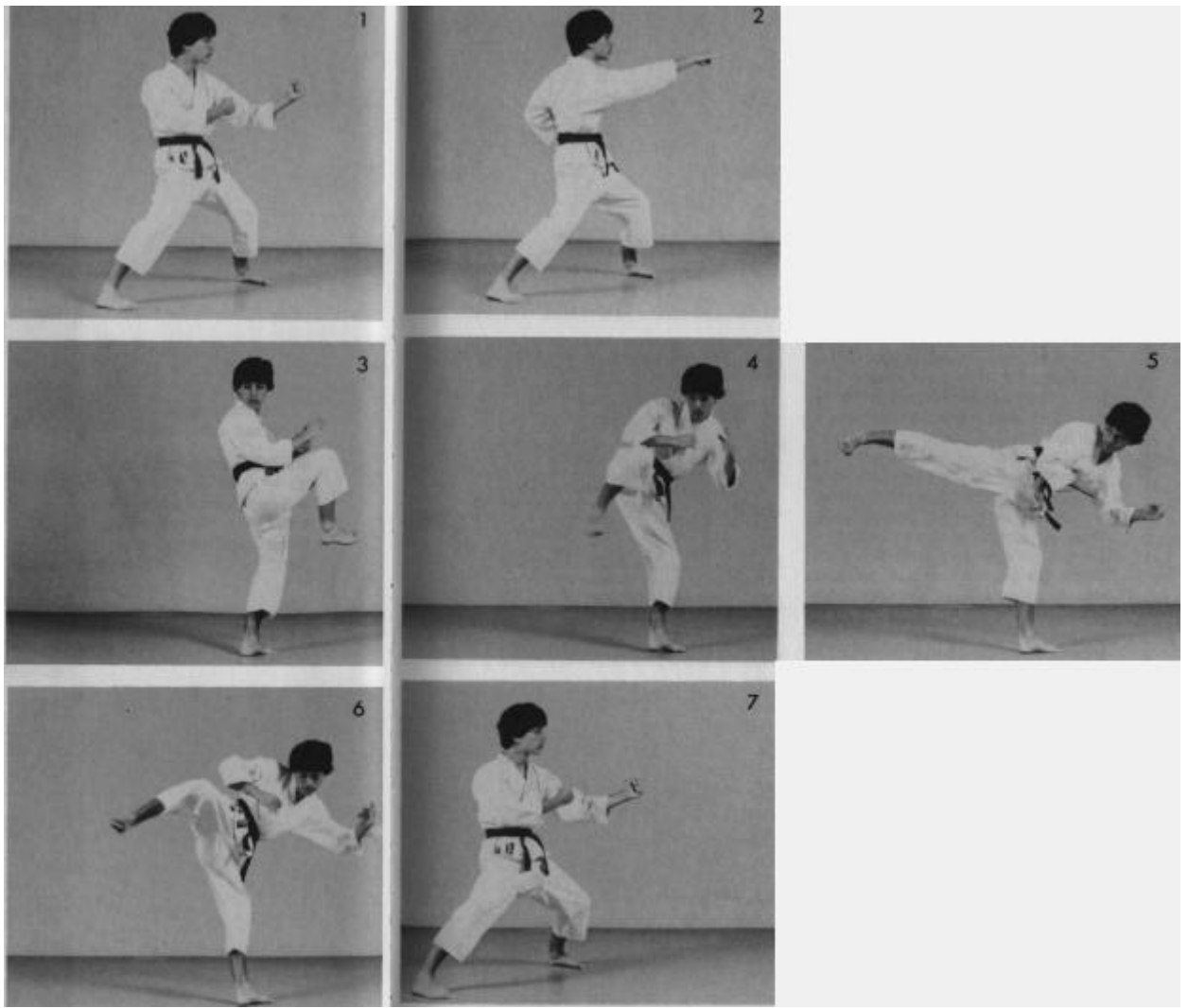
Standing Exercise No. 6

(1) From a ready-position in a half-moonstance, (2) bring your right arm through center, (3&4) reverse-rotate your hips to execute a counter-knife-hand-strike-snap with the right hand, then (5-7) drive your hips to execute a back-thrust-kick, and (8) return to your half-moon-stance ready-position.



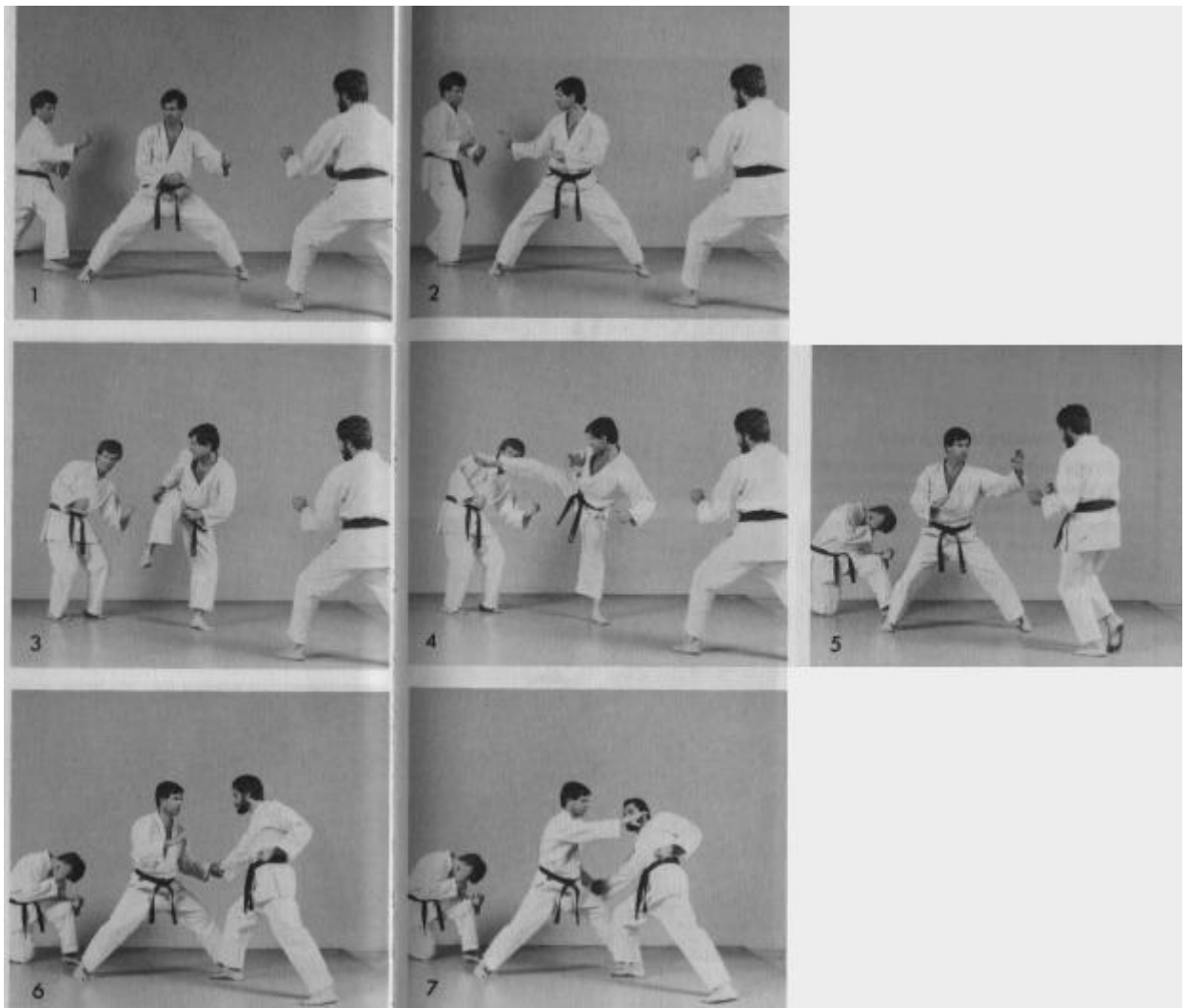
Application of Standing Exercise No. 6

(1) Facing two opponents in a half-moon-stance, the defender (2) drives his hips to execute a back-thrust-kick against the opponent charging from the rear. (3) He then brings his arm through center to cover and (4&5) reverse-rotates his hips to execute a counter-strike-snap to the face of the front opponent.



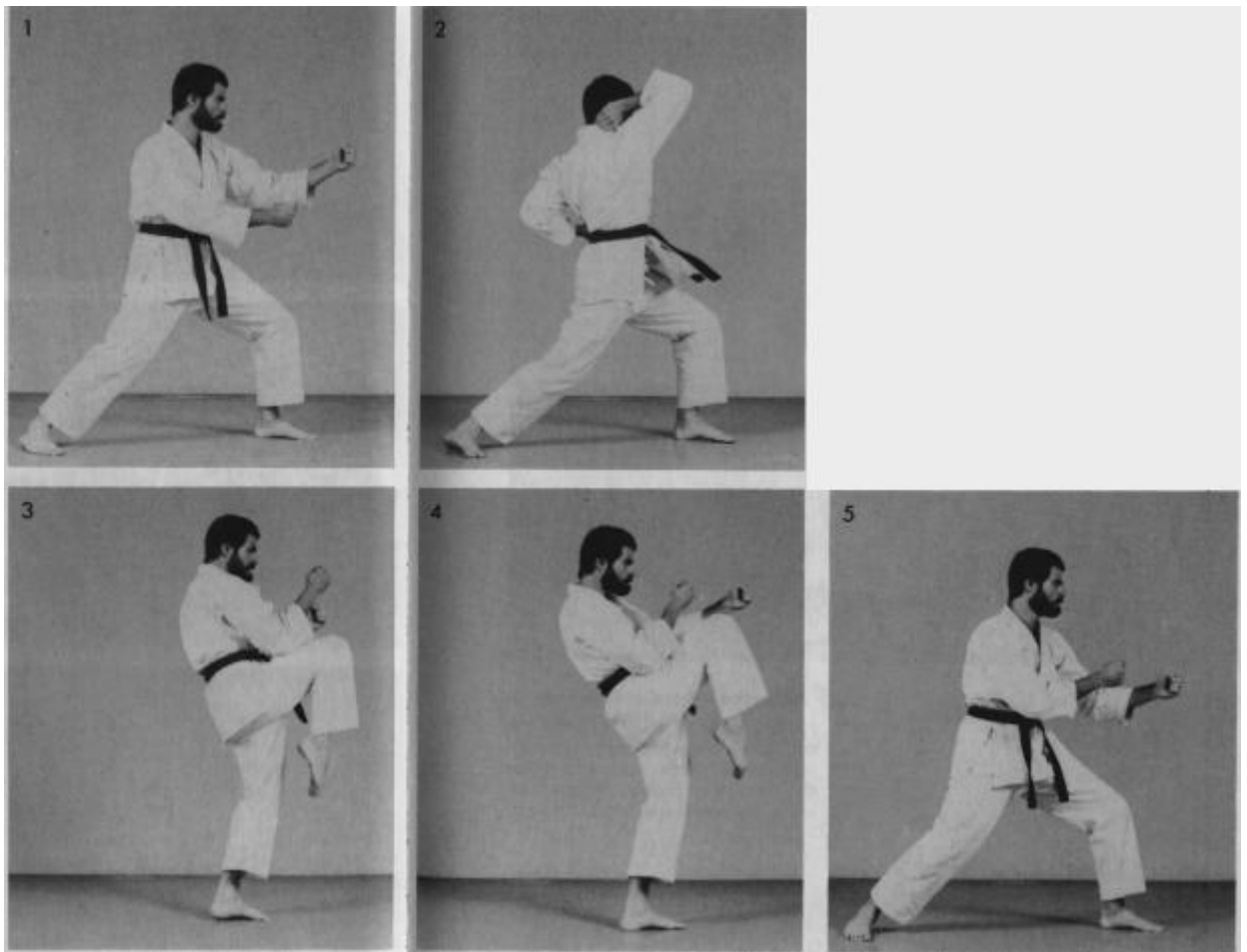
Standing Exercise No. 7

(1) In an angular-side-stance ready-position, (2) rotate your hips to execute a counter-ridge-hand-strike-lock with the right hand. Then (3-5) bring your right leg through center, and rotate your hips to execute a back-wheel-kick, swinging horizontally, reverse-rotating your hips just at the focus of the kick, and (6) bringing back your leg through center. (7) Return to your angular-side-stance ready-position.



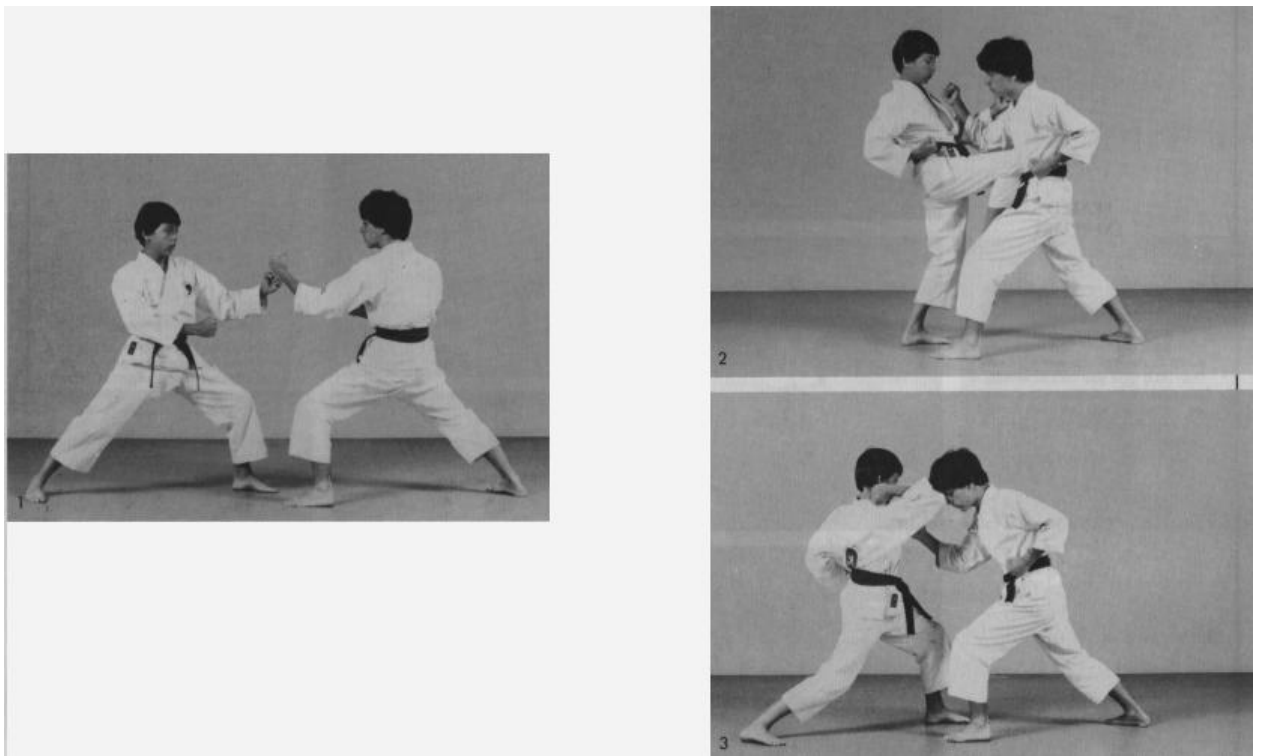
Application of Standing Exercise No. 7

(1) In an angular-side-stance against two opponents, the defender (2) shifts his attention to the opponent charging from the rear. (3) He drives his hips to execute a kick to the rear opponent who perceives the attack, and tries to move aside. (4) However, the defender follows the moving opponent by rotating his hips to deliver a back-wheel-kick to the face. (5&6) Then, he rotates his hips to execute a sweep-block against a punch from the front opponent, and begins to rotate his hips to execute a counter-ridge-handstrike-lock, (7) focusing his strike while continuing to break the opponent's balance with his pulling hand.



Standing Exercise No. 8

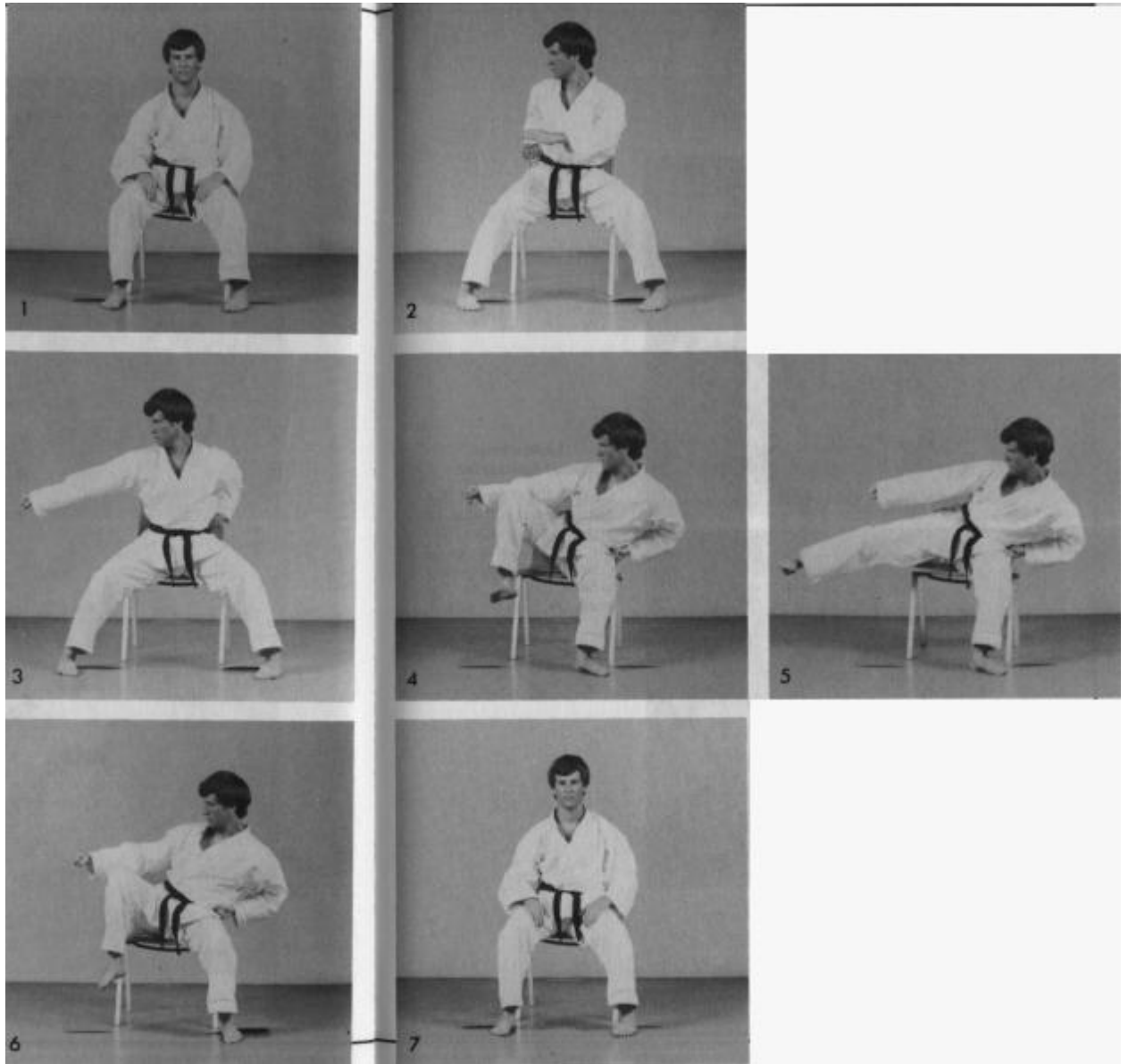
(1) In a front-stance ready-position, (2) rotate your hips to execute a counter-elbow-strike to the face with the right elbow. Then (3&4) drive your hips to execute a front-knee-kick with your right knee, and (5) return to your front-stance ready-position.



Application of Standing Exercise No. 8

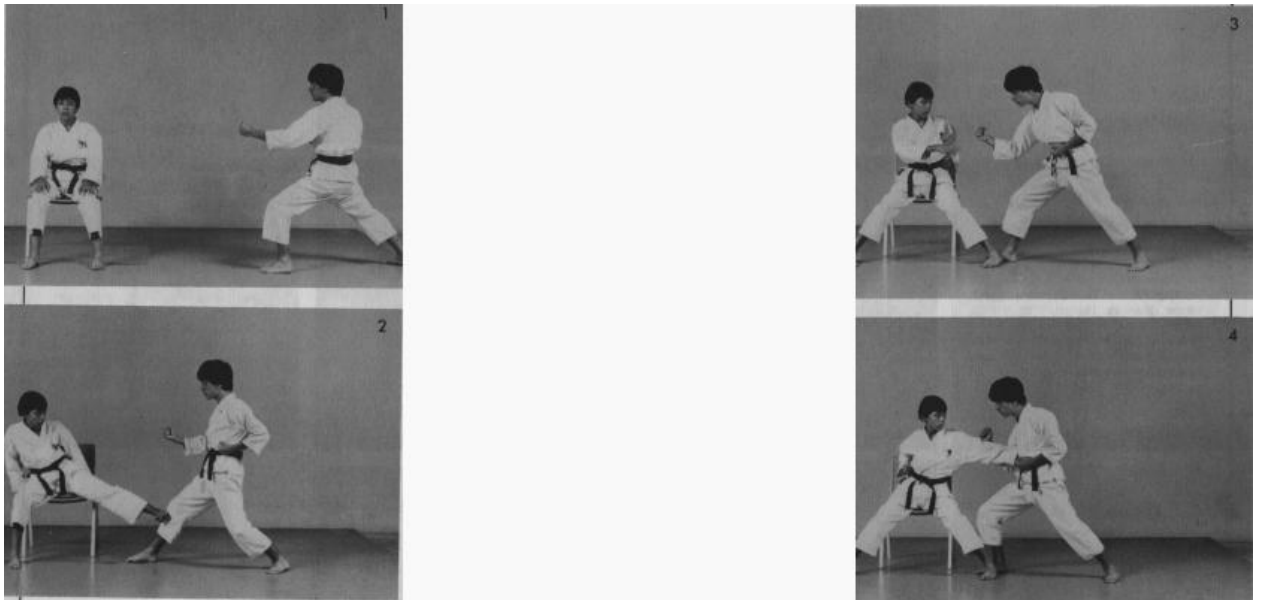
(1) Facing an opponent in close, the defender (2) drives his hips to execute a front-knee-kick to the stomach, and then (3) follows up by snapping his hips to execute a counter-elbow-strike to the face.

SEATED EXERCISES



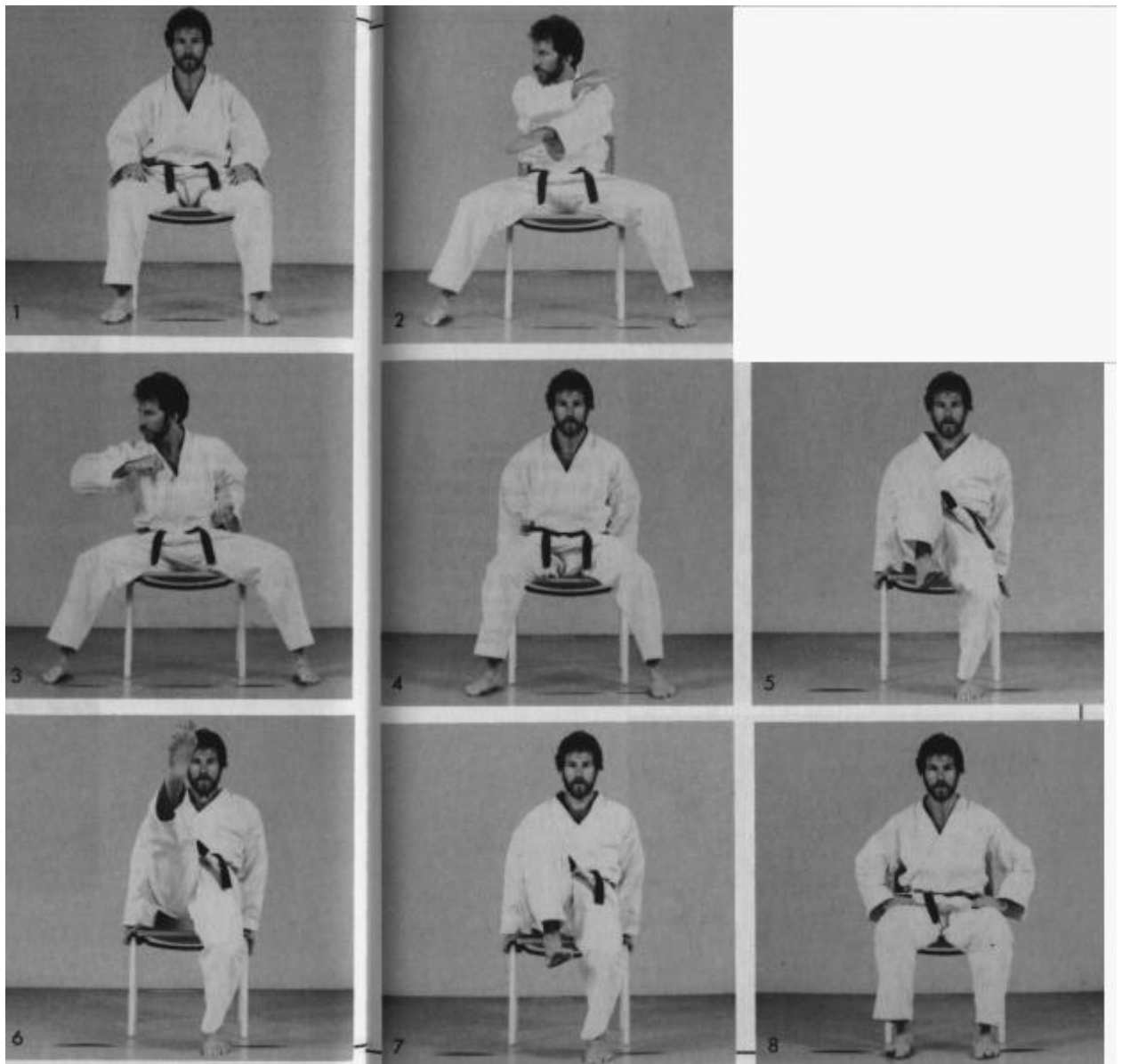
Seated Exercise No. 1

(1) From a ready-position seated in a chair, (2&3) snap your hips to execute a punch to the side with your right hand. Then (4&5) drive your hips to execute a side-thrust-kick to the knee with your right leg, (6) pulling your leg back through center. (7) Return to your seated ready-position.



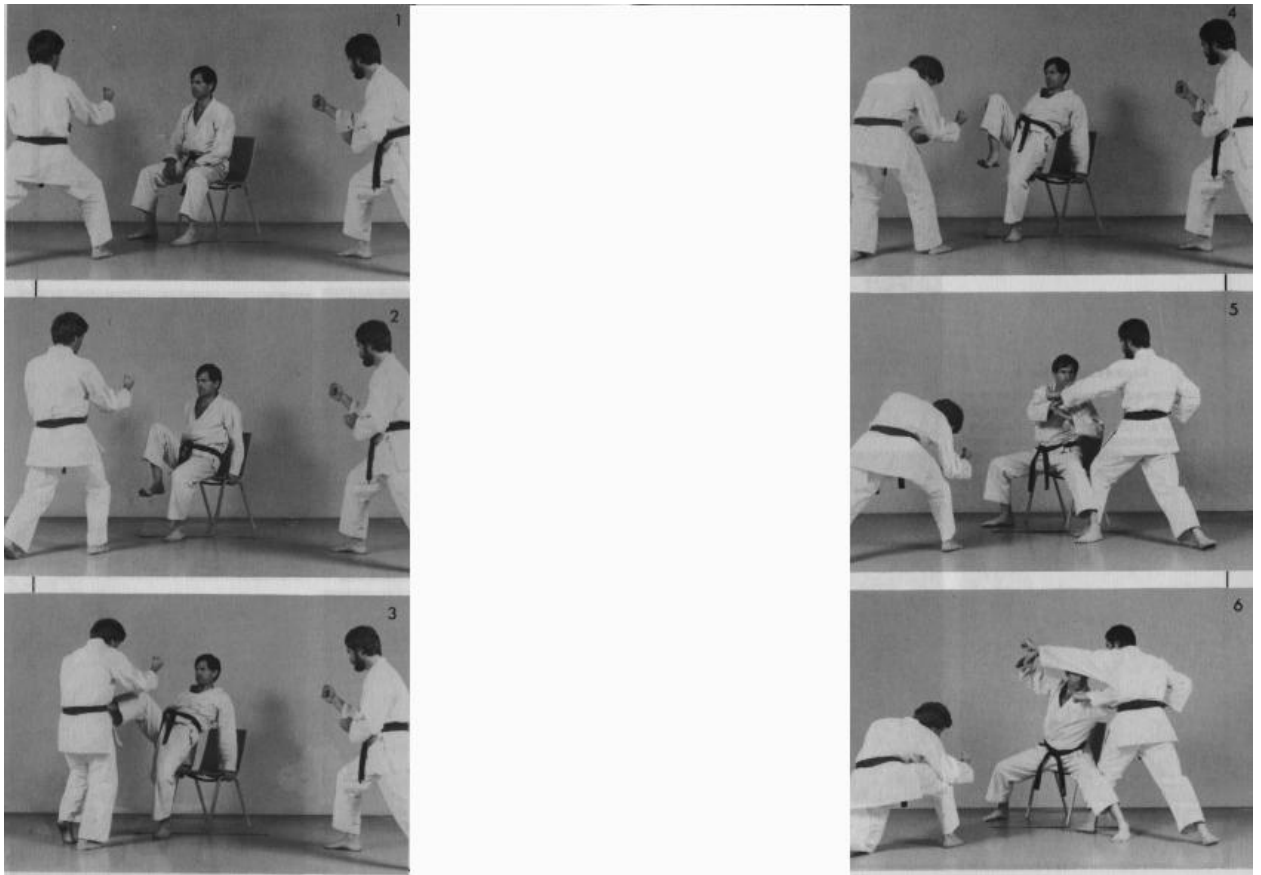
Application of Seated Exercise No. 1

- (1) With the defender in a seated ready-position, an attacker approaches from the left. The defender (2) drives his hips to execute a side-thrust-kick to the knee, stopping the attacker's charge. Then (3) bringing his arm through center, the defender (4) finishes by snapping his hips to execute a punch to the stomach of the attacker.



Seated Exercise No. 2

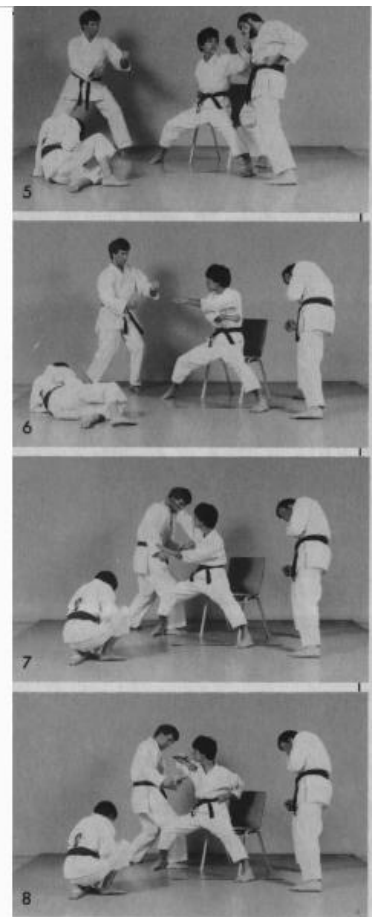
(1) From a ready-position seated in a chair, (2&3) snap your hips to execute an elbow-strike to the right side with your right elbow. Then (4) pressing your palms down on the chair to form a "stance" of tension through your torso, (5-7) drive your hips to execute a front-snap-kick with your right leg. (8) Return to a seated ready-position.



Application of Seated Exercise No. 2

(1) In a seated position, ready to defend against two opponents, the defender (2) pulls his leg through center and (3&4) drives his hips to execute a front-snap-kick. He then (5) snaps his hips to execute a sweep-block against a punch from the opponent to the left while beginning an elbow strike which (6) he delivers by snapping his hips to execute the strike against the opponent to the left.

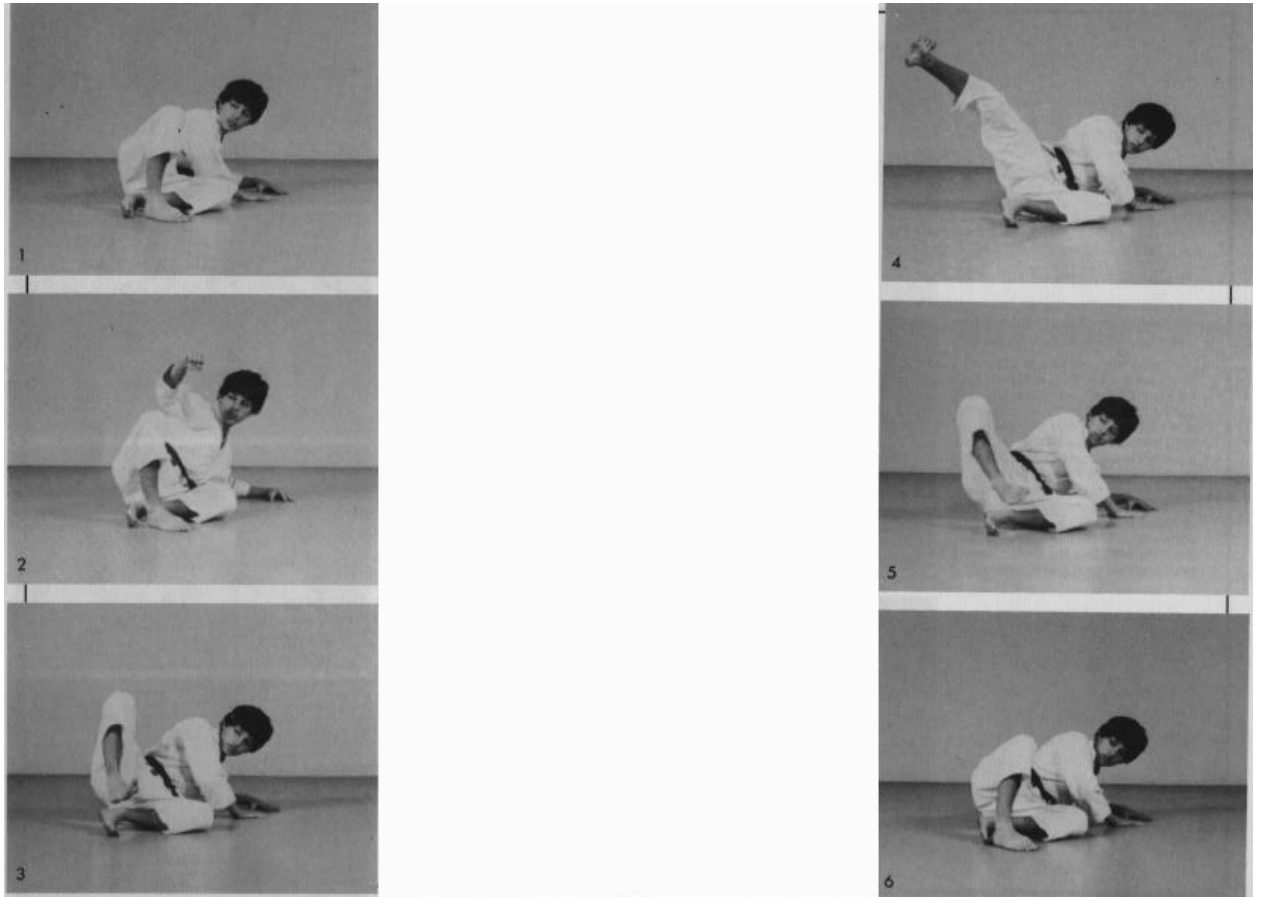




Application of Seated Exercise No. 3

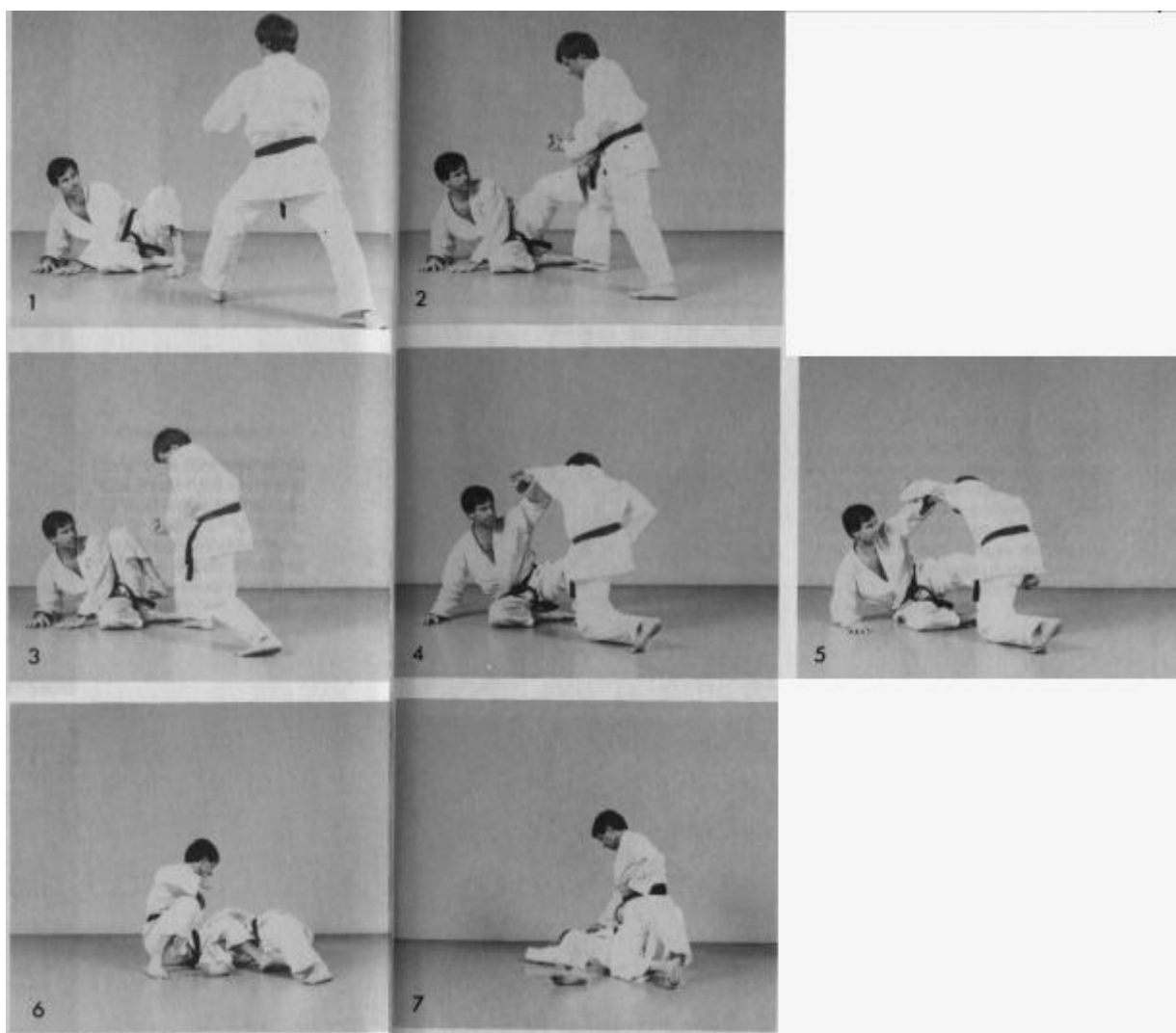
(1) In a seated ready-position against three opponents, the defender (2&3) drives his hips to execute a front-thrust-kick against the opponent charging from the front. The defender then (4&5) snaps his hips to execute a combination high-inside-forearm-block and a back-fist-strike-lock to the face of the opponent to the left. The defender (6) snaps his hips to deliver a sweep-block to deflect a punch from the opponent to the right, and (7&8) follows by snapping his hips to execute a strike-snap to the face.

FLOOR EXERCISES



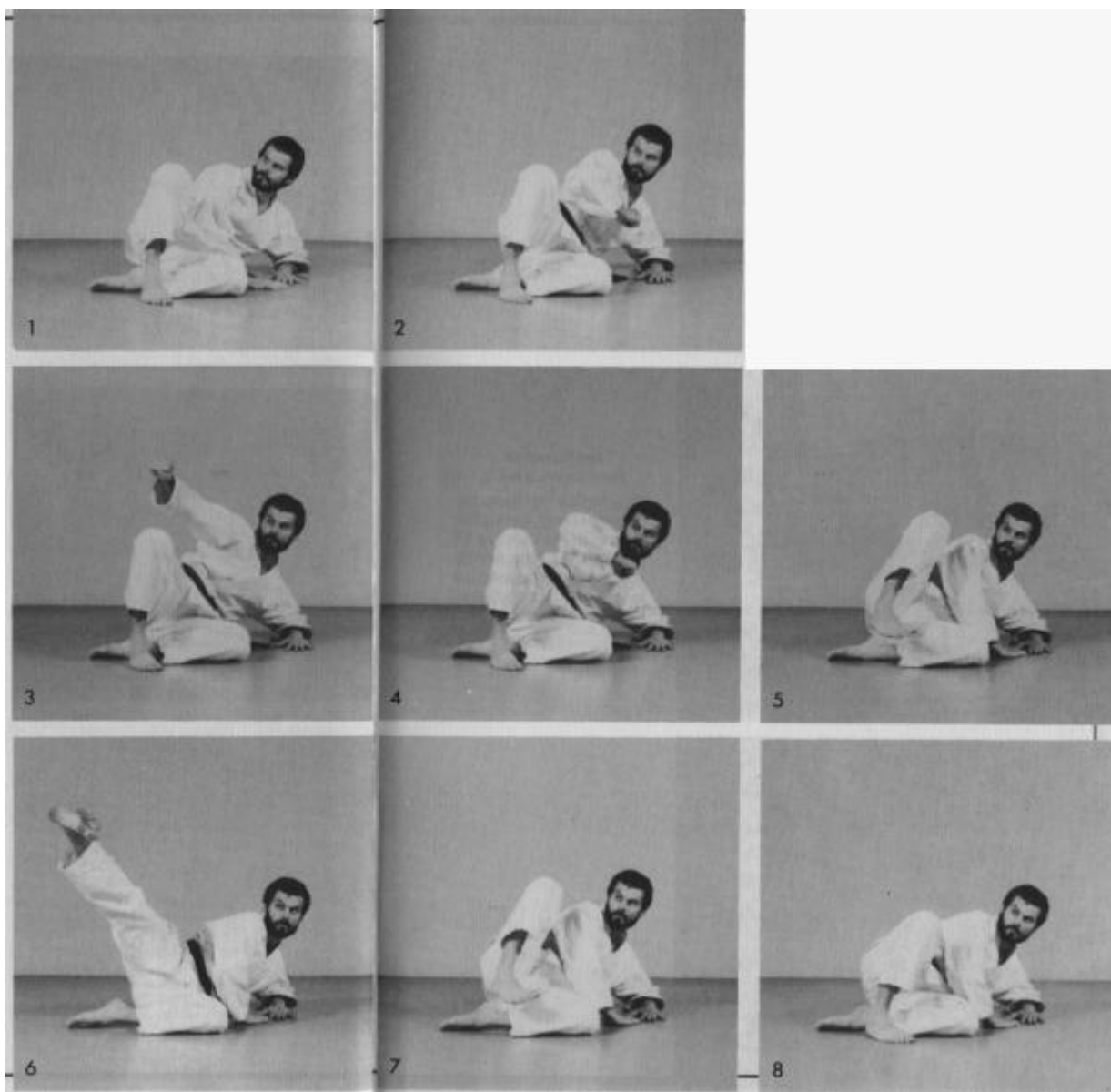
Floor Exercise No. 1

(1) From a ready-position lying on your left side and pressing your left arm and left leg against the floor in an outward tension which creates a "stance" across your torso, (2) rotate your hips to execute an up block with your right arm. (3-5) Press both hands and your left leg to the floor to create a "stance," drive your hips to execute a sidesnap-kick, and (6) return to your ready-position.



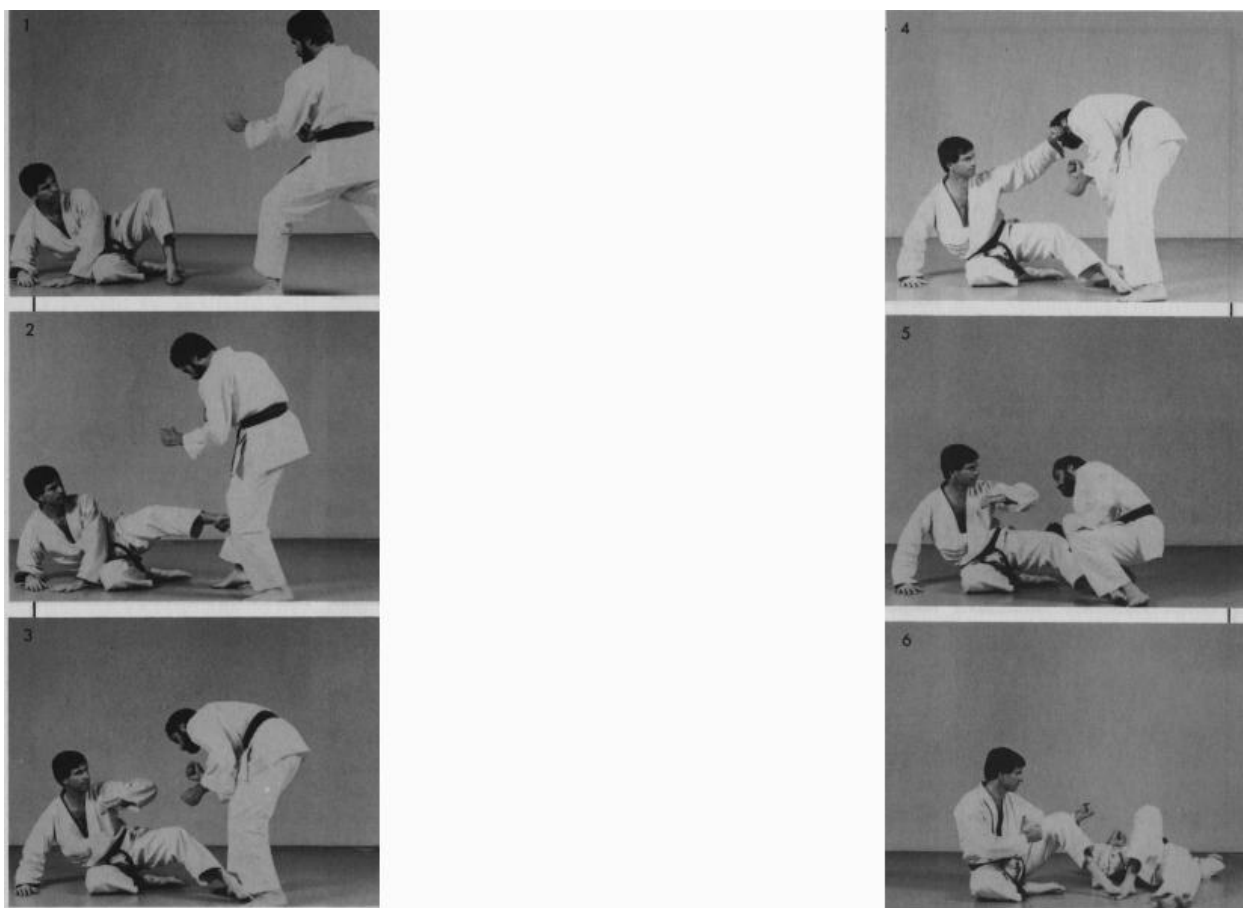
Application of Floor Exercise No. 1

- (1) From a ready-position lying on the floor facing a standing opponent, the defender (2&3) stops the charging opponent by driving his hips to execute a side-snap-kick. He then (4) reverse-rotates his hips to execute an up-block against the attempted counter-punch by the opponent. The defender then (5&6) drives his hips to execute a sweep with his left leg to the upper thigh of the opponent to form a torque to throw the opponent about his hip center, (7) holding and controlling the thrown opponent, ready to attack again if necessary.



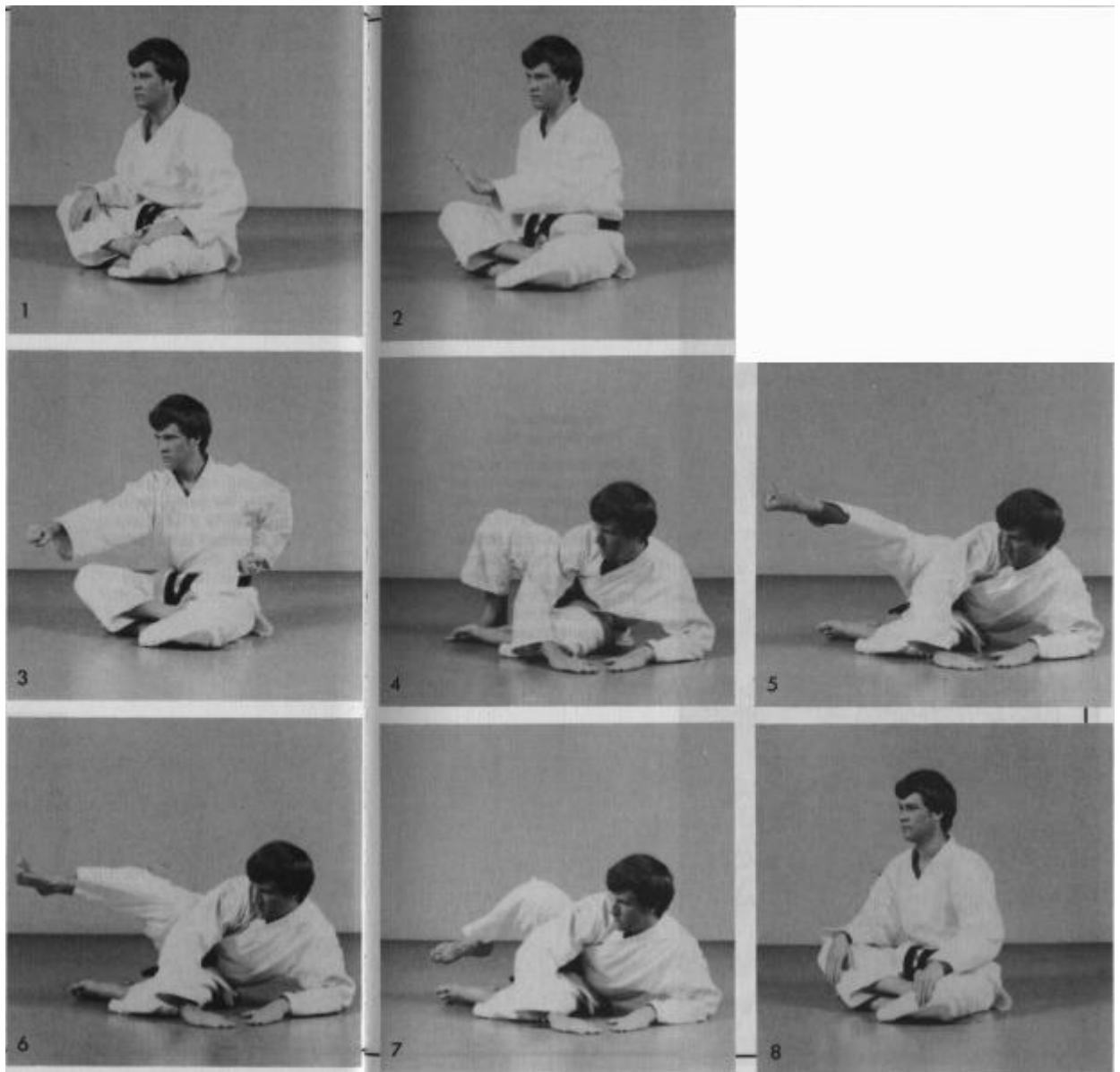
Floor Exercise No. 2

- (1) From a ready-position lying on your left side, (2-4) rotate your hips to execute a strike-snap with your right hand. Then (5-7) pressing your hands and left thigh against the floor to form a "stance," drive your hips to execute a side-thrust-kick with your right leg. (8) Return to your ready-position.



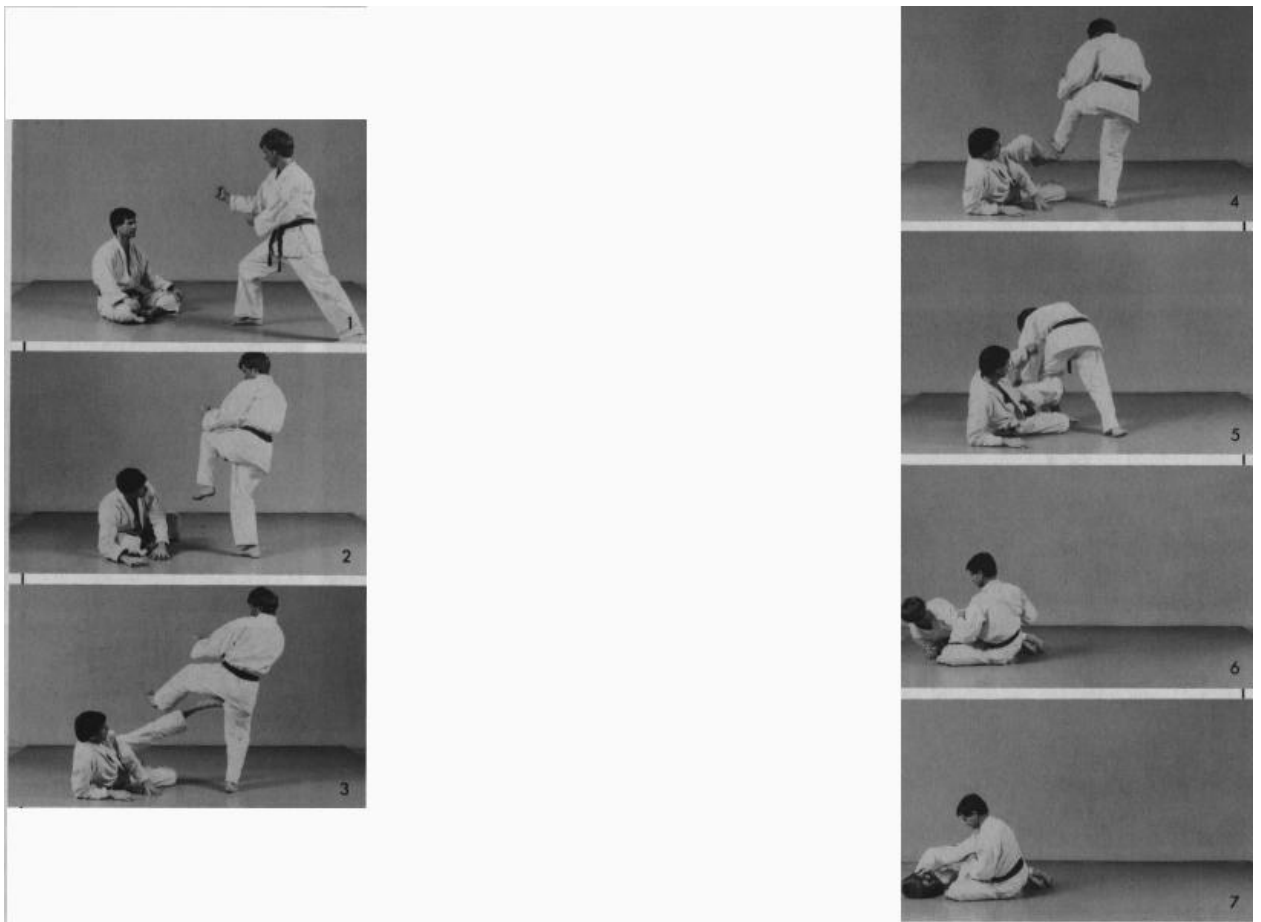
Application of Floor Exercise No. 2

(1) Lying on the floor, the defender faces a standing opponent. The defender (2) stops the opponent's charge by driving his hips to execute a side-thrustkick to the knee. (3-5) Bringing his arm through center, he rotates his hips to execute a strike-snap, (6) returning to his ready-position, prepared to attack again if necessary.



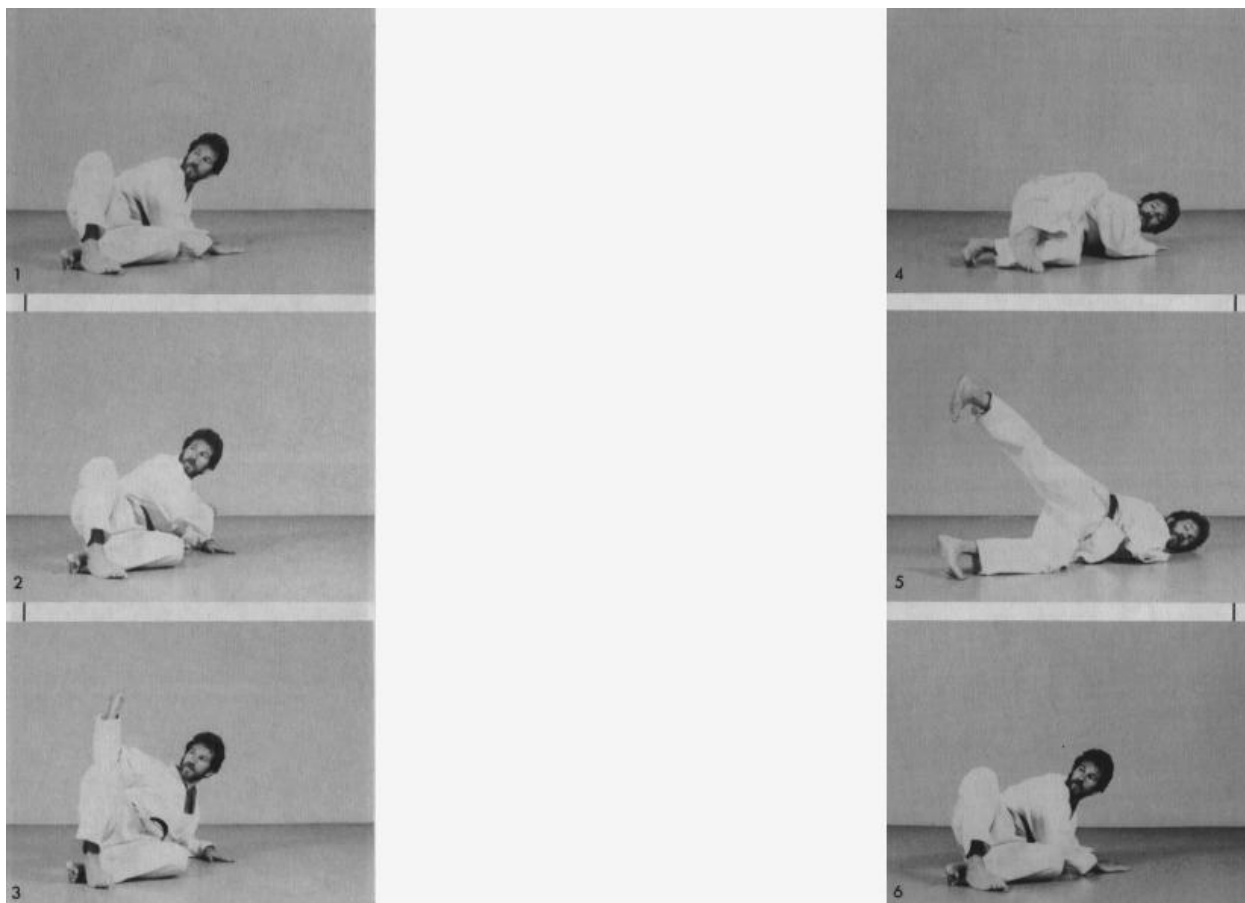
Floor Exercise No. 3

(1) Sitting in a half-lotus position, right leg on top, (2&3) bring your arms through center and snap your hips to execute a punch with your right hand. (4) Roll to your left side, pressing your hands and left thigh to the floor to create a "stance," and (5-8) pulling your knee through center, rotate your hips to execute a round-snap-kick, and (8) return to your half-lotus ready-position.



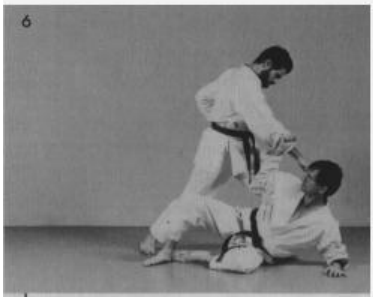
Application of Floor Exercise No. 3

(1) The defender, seated in a half-lotus position, faces a standing opponent. (2) As the opponent attacks, the defender rolls under his front-kick, and (3&4) rotates his hips to execute a round-snap-kick under the opponent's front-kick. The defender (5) creates a torque to throw the opponent by hooking his left leg behind the opponent's knee, and hooking his right ankle in front of the opponent's ankle. Then, (6) bringing down his opponent, the defender (7) finishes by thrusting his hips to execute a punch to the face from the sitting position.



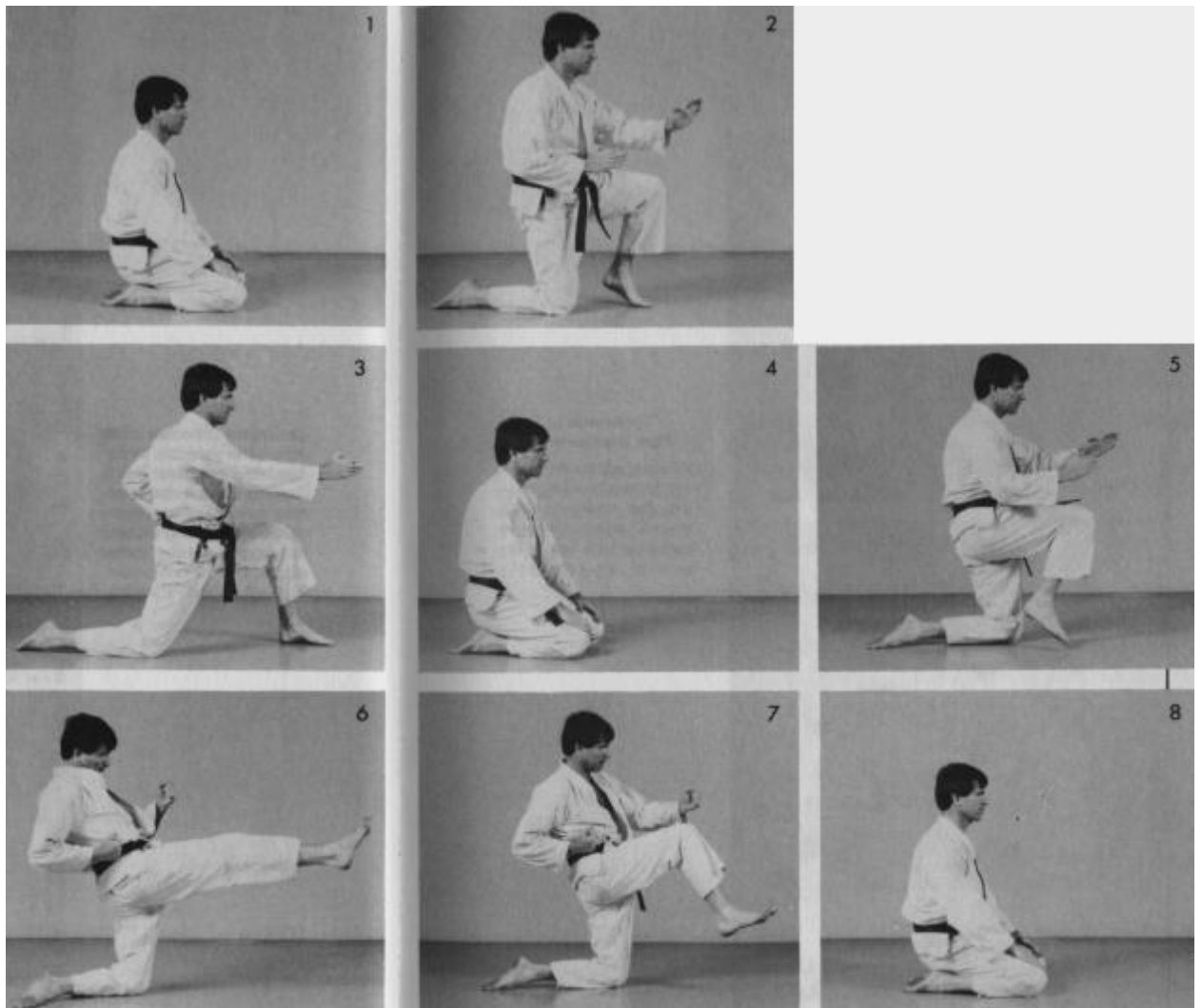
Floor Exercise No. 4

(1) From a ready-position lying on your left side, (2) bring your arm through center, and (3) reverse-rotate your hips to execute a high-inside-round-block. (4) Pressing both hands, chest and left thigh to the floor to create a stance across your torso, (5) drive your hips to execute a back-thrust-kick with your right leg, and (6) return to a ready-position on your side.



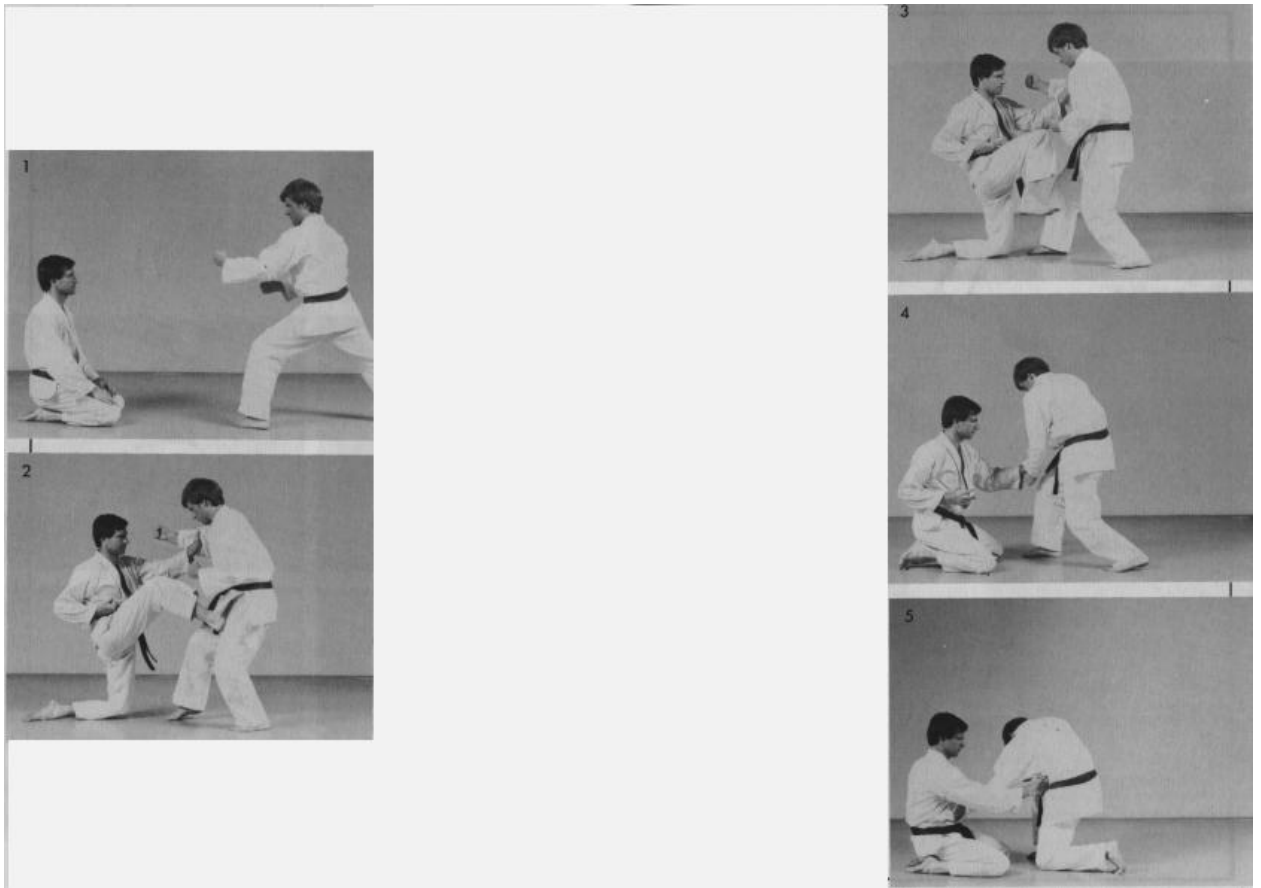
Application of Floor Exercise No. 4

(1) The defender, ready in a kneeling position, is attacked by an opponent from the rear, but (2) waits for the proper time to defend. The defender (3) falls to the floor to escape his opponent's stomp-kick while he pulls his right leg through center, and (4) pressing his chest to the floor, he drives his hips to execute a back-thrust-kick with his right leg under the attacker's stomp-kick. (5) Bringing up his torso, he rotates his hips to (6) execute a high-inside-roundblock against an attempted punch. The defender (7) creates a torque about his opponent's hip center by grabbing his opponent's elbow and kicking his opponent's ankle, then (8) throws the opponent to the floor. The defender (9) follows the opponent while coming up to a stable sitting position, and (10) finishes by thrusting his hips to execute a punch to the face.



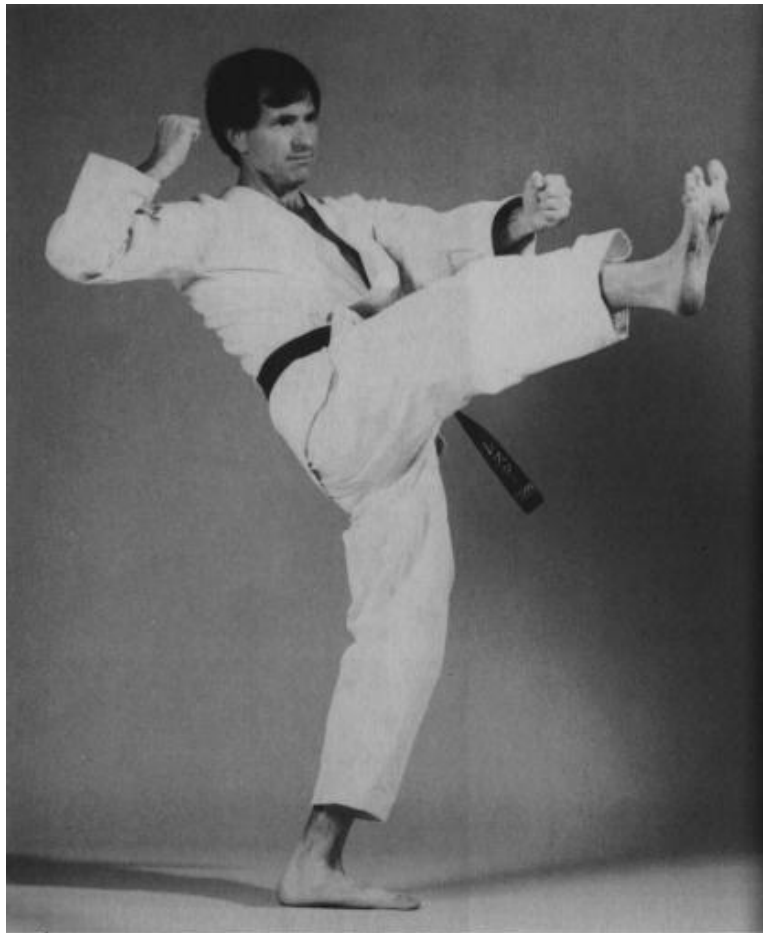
Floor Exercise No. 5

(1) From a kneeling ready-position, (2) rise to a "stance" with your right knee on the ground, and bringing your right arm through center, (3) thrust your hips to execute a counter-spear-handpunch. (4) Return to your kneeling position, and (5) pulling your right leg through center, (6&7) drive your hips to execute a front-snap-kick, and (8) return to your ready-position.



Application of Floor Exercise No. 5

(1) Facing a standing opponent from a kneeling position, the defender (2&3) drives his hips to execute a front-snap-kick before the focus of his opponent's punch. Then (4&5) going back to a kneeling ready-position, he snaps his hips to execute a spear-handpunch as his opponent falls to the ground.

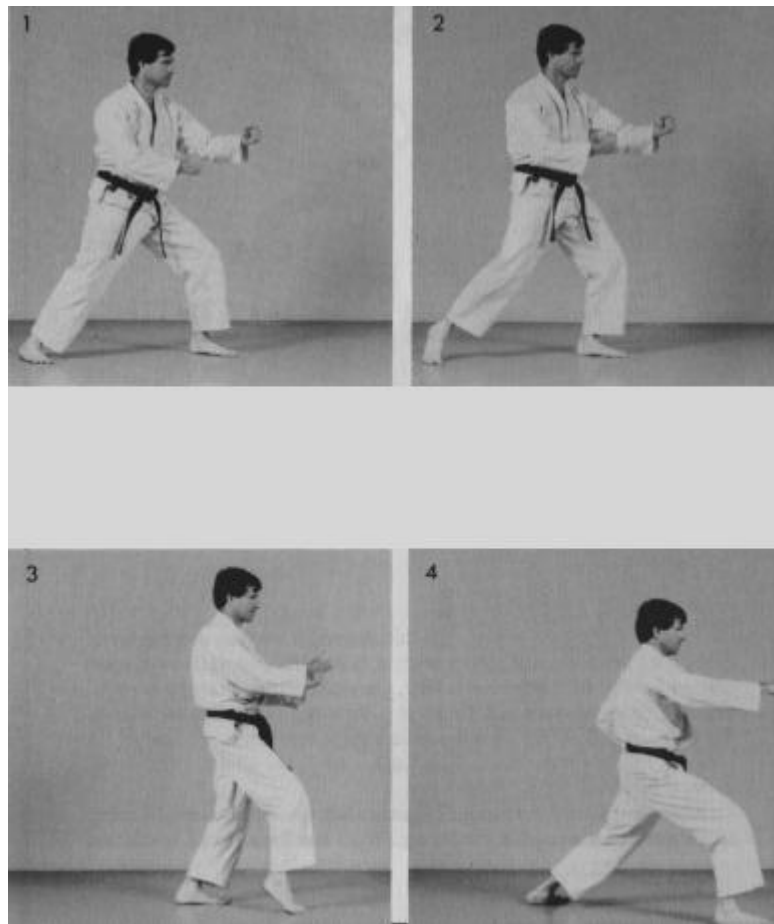


CHAPTER THREE

FEINTING

In this chapter, a teaching method, independent of any particular school or style, is presented to teach an average student how to feint effectively. First, consideration must be given of inside tension stances (in which your legs pull toward each other) and outside tension stances (in which your legs push apart). Any major body technique typically involves both kinds of stance tension in the course of its movement.

A step-in-punch is performed by going from one outside-tension stance to another outside-tension stance, e.g., from one front-stance to another front-stance. However, this transition still requires an inside-tension stance as the feet cross, in order to accelerate the body in the middle of this movement. For convenience, let's call the leg that remains grounded while accelerating the rest of the body the "control" leg; and the "receiving" leg is the leg that is moved. Then, by simply changing the flow of force through the control leg, the feinted technique can be "short-circuited" into another technique. This short-circuiting can be done at the beginning, the middle, or the end of the feinted technique.



Step-in-Punch

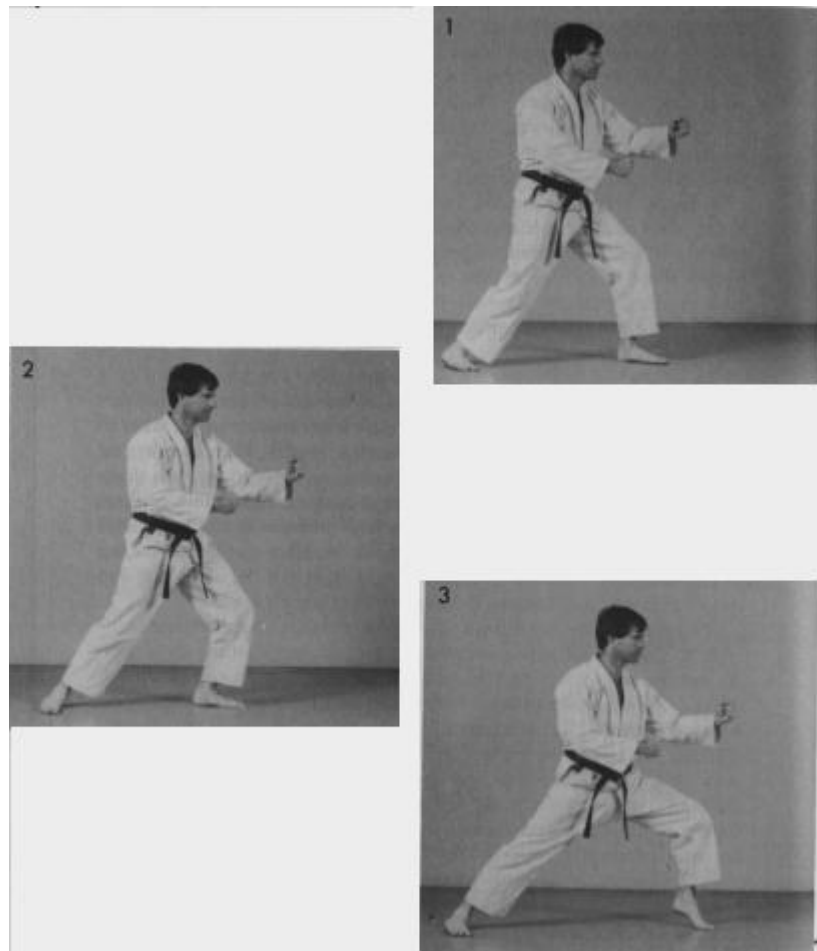
(1) From a front-stance, your legs exert outside tension. (2) As you begin to step in, and (3) your legs cross, they exert inside tension. (4) Stepping into a new front-stance with outside tension, thrust your hips to execute a punch.

For example, if your opponent reacts to your initial surge by charging in, then your surge forward can be changed to a step backwards, by keeping the receiving leg rooted, and pulling the body backward. Or, the middle inside-tension transition of the step-in-punch can be short-circuited into a shorter punch from an inside-tension hour-glass or half-moon-stance to break the opponent's attention. This allows you to take advantage of your opponent's temporary confusion. While his attention is drawn inward, he will not be paying as much attention to your coming technique. Similarly, at the end of the step-in-punch, the intention to continue into a punch/kick combination can be feinted, etc.

A precise way of organizing feints that are dynamic movements is: by doing feints as fully executed correct karate techniques in between other techniques, i.e., as transitions between techniques, the student learns to project them as full techniques to the opponent, simply because that is what is being executed. Because the feint will be perceived as a strong technique, it will cause a reaction from the opponent, which of course is the objective of the feint.

To be able to use feinting techniques spontaneously, you will not only have to practice hard at each training session, but you will also have to practice regularly for quite a few years. There are many reasons why it takes so long to integrate techniques into spontaneous strategies. There are physical reasons: you have to develop the coordination, not only to perform single powerful techniques, but to put together rhythmic combinations of these techniques, to develop patterns of purposeful movements and purposeful pauses between these movements. This book therefore emphasizes the use of combinations in all aspects of training. Feints must be imbedded into these patterned combinations if they are to be truly effective.

There are also mental reasons why it takes so long to execute feints in the context of patterned body movements. You must learn to think while moving dynamically, not to merely react with reflexes conditioned in circumstances vaguely similar to those of your present environment. For example, when you first start learning karate, if you could use a stopwatch to precisely calculate just how many minutes during a training session you were actually in motion, you would probably be quite surprised to find out how much of the time you were not actually performing dynamic techniques. This is in stark contrast to doing the activity of advanced karate, when you are in motion most of the time, using isolated fragments of time and space to execute stances to create new motion or to control motion already in progress. This contrast arises simply because when learning any subject, it requires preparation before techniques and reflection afterwards to optimally learn. In learning any language, at first the details of studying a new disjointed vocabulary are somewhat overwhelming, but persistence and the study of transitions in word combinations soon enable you to become fluent with sentences and paragraphs. Similarly with the body language of karate: the process of studying techniques and transitions between techniques soon leads to a patterning of feints and techniques, leading to the spontaneous and natural execution of physical and attentional strategies.



Feinting Stepping In

(1) In a front-stance with outside tension, (2) begin to step in with inside tension, pulling with your front leg, but keeping your back leg rooted to the ground. An alternative way of feinting from a front-stance with outside tension is to (3) drive forward by releasing your front leg (control leg), while continually pushing with your back leg. Quickly root your front leg to the ground after a short sliding motion.

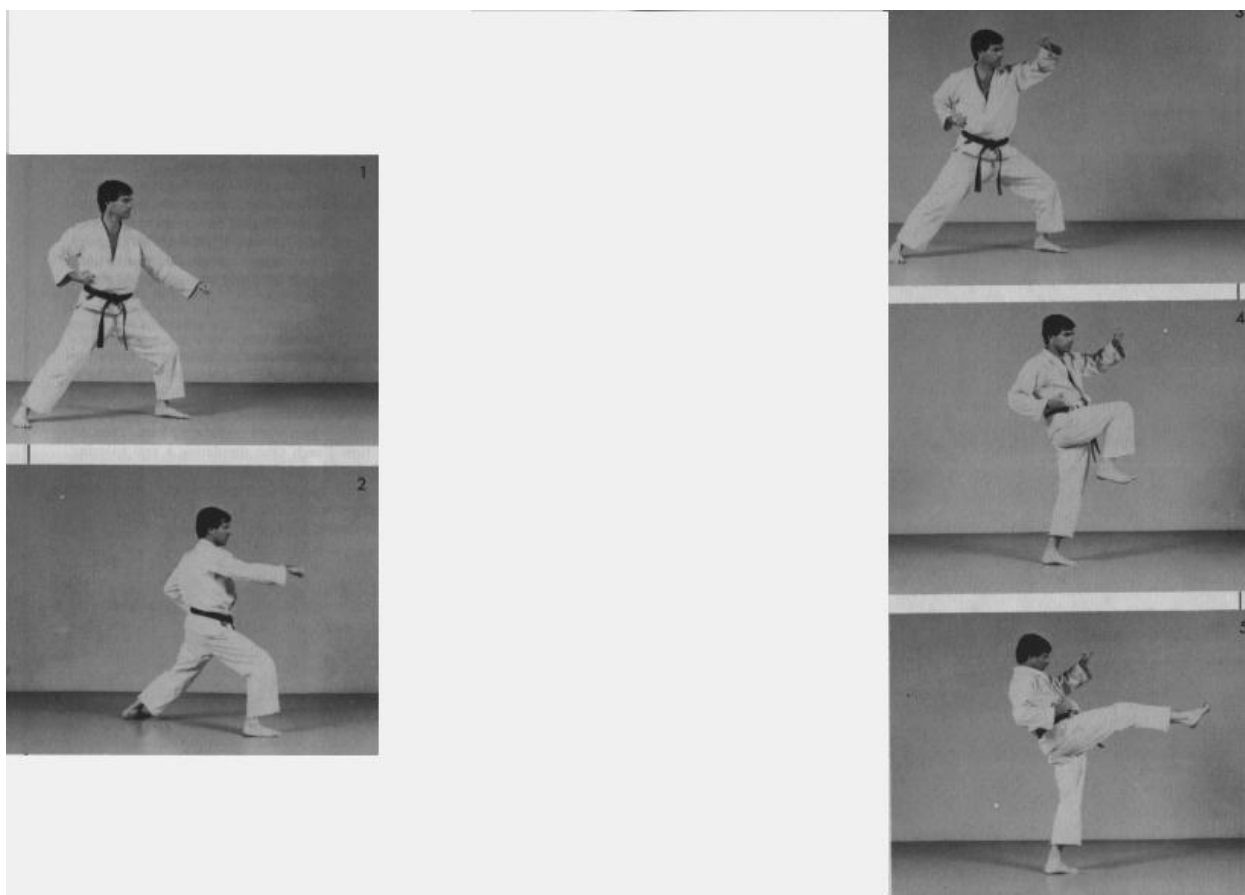
It takes a long time to finally be able to use global attention processes that can span several techniques, instead of focal attention processes that are optimally used at the beginning level. Chapter Five will have more to say about attention processes. However, especially for the purposes of this chapter, try to "think dynamically," i.e., to think while in motion. Only in this state of mind can you physically take advantage of breaks in your opponent's attention caused by your feints.

Feinting Combinations

The following combinations contain feinting techniques requiring changing tensions in the controlling and receiving legs. After learning a combination, do it slowly several times to understand its rhythm. Be sure to react to specific space-time stimuli that represent imaginary opponents, similar to the state of mind you

maintain when performing kata. Then do the combination fast many times, each time simulating a real sparring situation. At another training session, go through this same sequence, but learn and do the mirror image of the previous combination, exchanging right for left. Each of the following combinations starts with the left leg forward in an outside-tension-stance.

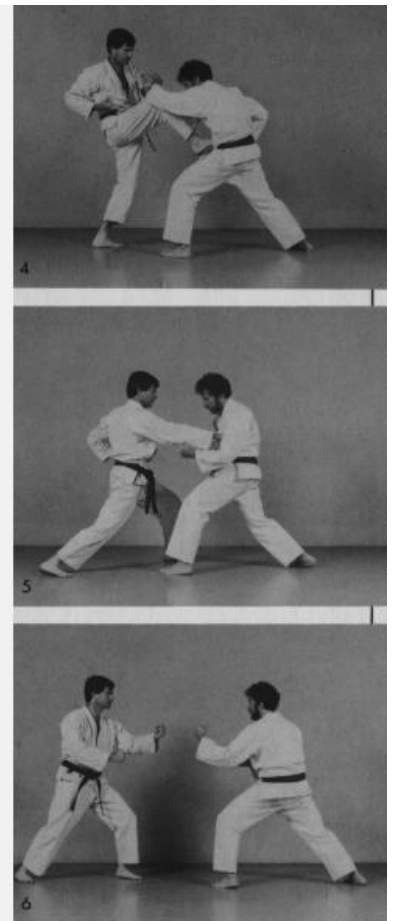
COMBINATIONS

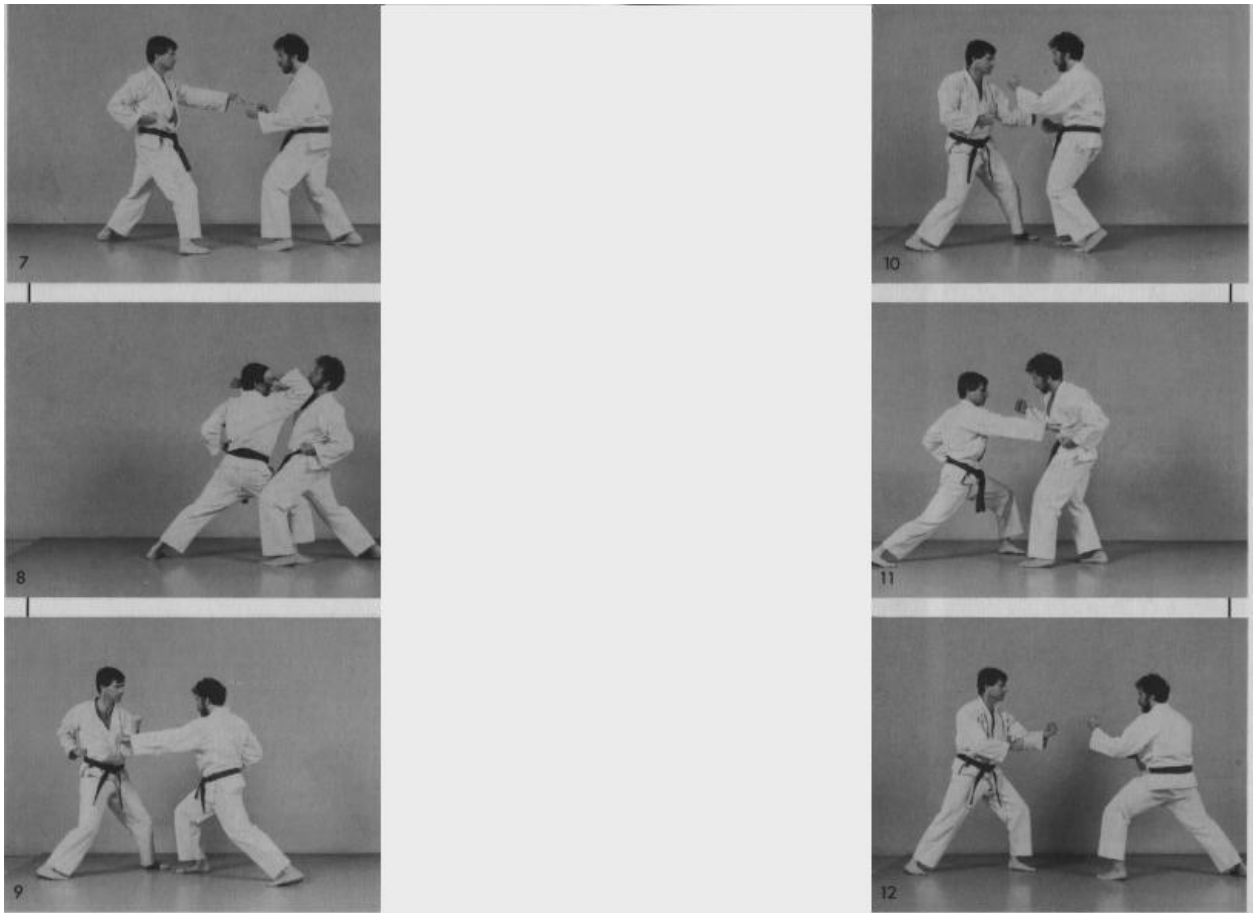




Combination No. 1

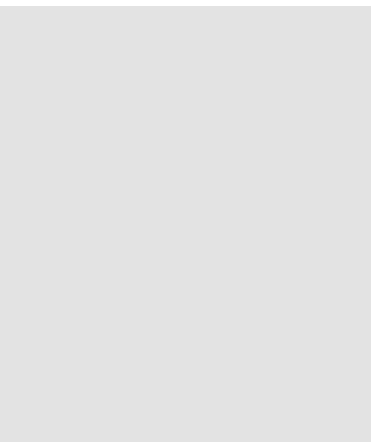
(1) Begin in a front-stance, and (2) thrust your hips to execute a (unclear) step-in-punch with your left hand. (3) Step back and rotate your hips to execute an up-block with your left hand, (4&5) drive your hips to execute a front-snap-kick with your right leg, (6) completing the snap back, (7) pull your right leg back into a front-stance, and snap your hips to execute a counter-punch with your right hand. (8) Pause. (9) Thrust your hips into a half-moon-stance, feinting by thrusting your hips to execute a counter-punch with your left hand, but instead, (10) continue to thrust your hips into a front-stance with your right leg, and rotate your hips to execute an elbow-strike to the face with your right elbow. (11&12) Step back into a half-moon stance, and rotate your hips to execute an outside-round-block. (13) Feint by thrusting back your hips, (14) step back with your right leg into a front-stance, and snap your hips to execute a counter-punch with your right hand, and then (15) return to your ready-position.

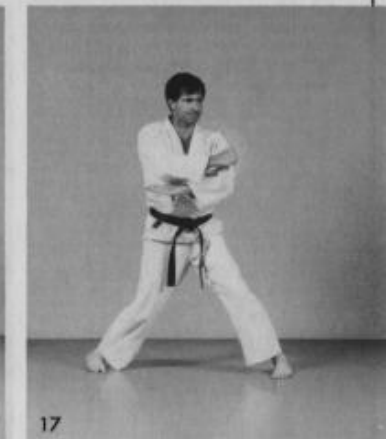
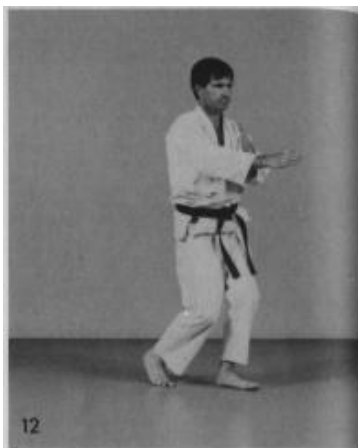




Application of Combination No. 1

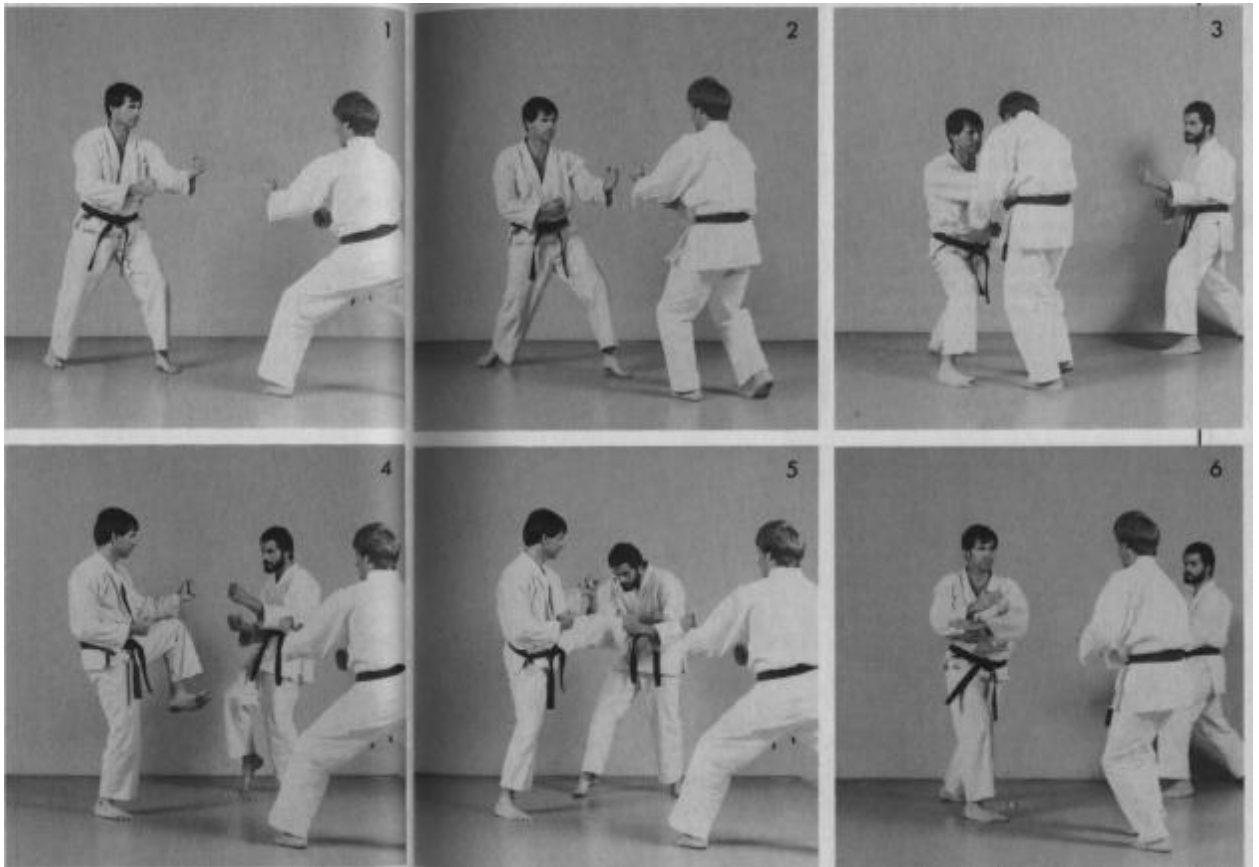
(1) Facing an opponent in a front-stance, the defender (2) thrusts his hips to execute a step-in-punch with the right hand, then (3) he steps back to a front-stance, and rotates his hips to execute an up-block with his left arm. (4) He drives his hips to execute a front-snap-kick, then (5) pulls back his leg into a front-stance, and snaps his hips to execute a counter-punch with the right hand. (6) He pauses. Then, the defender (7) feints by thrusting his hips to execute a counter-punch stepping into a half-moon-stance, but then (8) thrusts and rotates his hips to execute an elbow-strike to the face while stepping into a front-stance. (9) He steps back and rotates his hips to execute an outside-round-block with his left arm from a half-moon-stance, (10) feints by shifting his hips back, then (11) steps forward and rotates and thrusts his hips to execute a counter-punch with his right hand from a front-stance. Then he (12) returns to his ready-position.

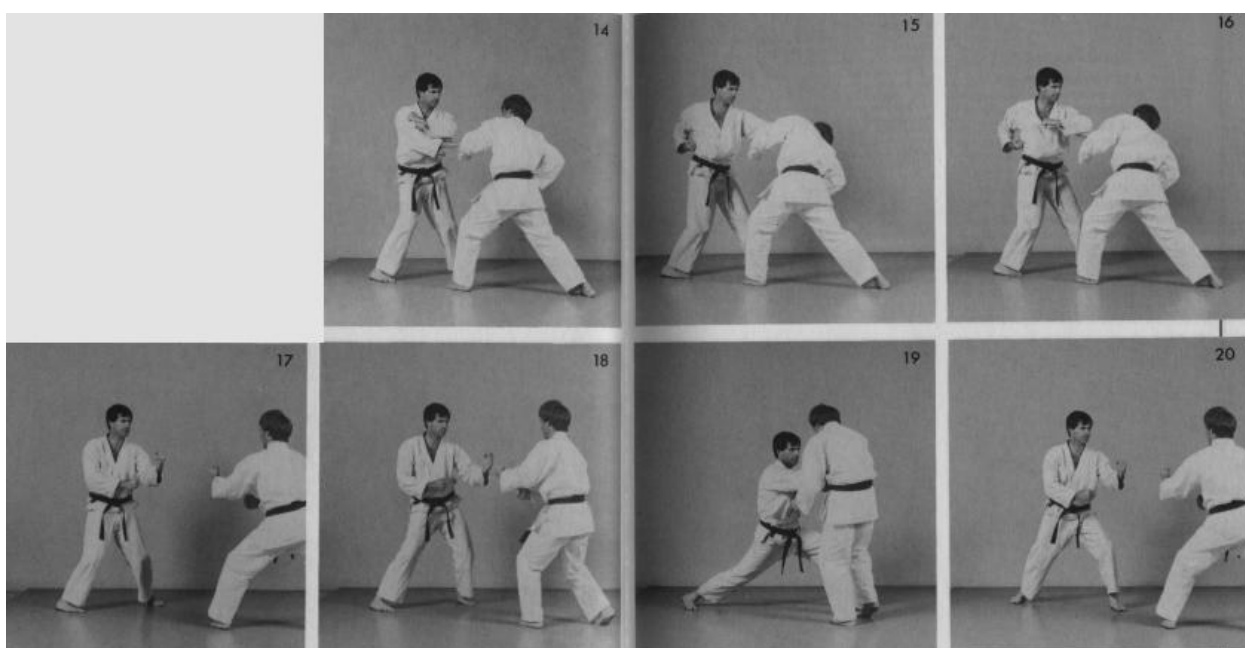
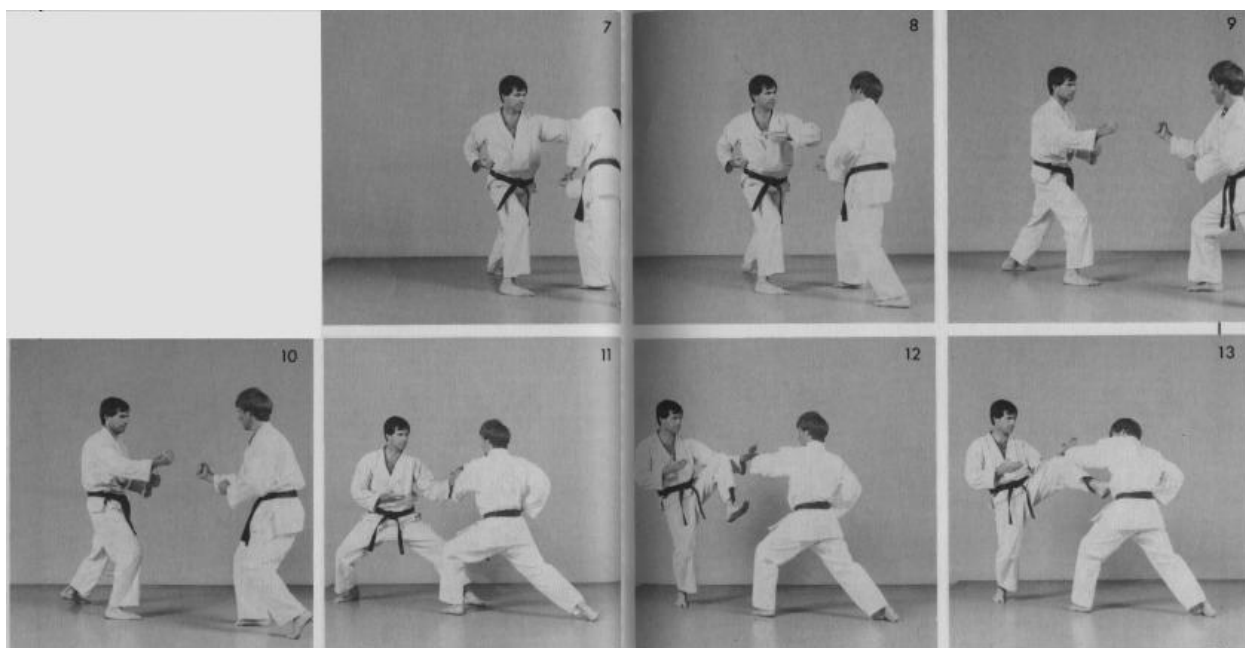




Combination No. 2

(1) From a ready-position in a front-stance, (2) feint by thrusting back your hips, but instead, (3) step in and thrust your hips to execute a step-in-punch into a front-stance. (4-6) Drive your hips to execute a side-snap-kick, and then (7-9) reverse-rotate your hips to execute a counter-strike-snap with your left hand to the face from a front-stance. (10) Pause. (11) Feint by thrusting your hips forward, but instead, (12) step back, and (13) reverse-rotate your hips to execute a knife-hand-inside-block with your left hand from a back-stance. (14-16) Drive your hips to execute a front-snap-kick, then (17) bring your arm through center and (18&19) reverse-rotate your hips to execute a strike-snap with your left hand to the face (18) from a half-moon-stance. (20) Pause. (21) Feint by thrusting your hips forward, then (22) slide your hips forward again into a front-stance, and rotate and thrust your hips to execute a counter-punch with your right hand. (23) Return to your ready-position.

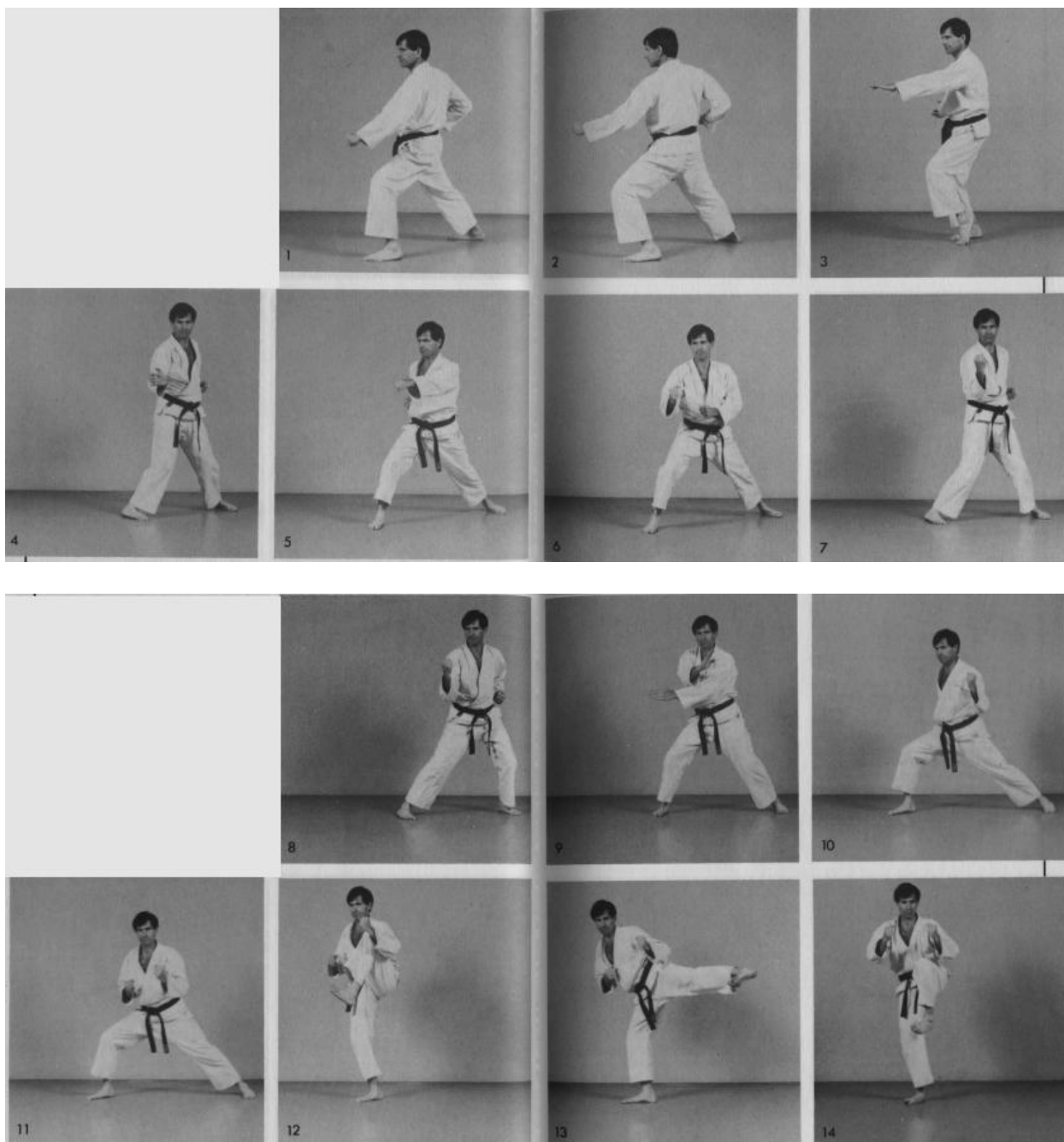




Application of Combination No. 2 (14-20)

(1) Confronting two opponents in a frontstance, the defender (2) feints by thrusting his hips back, but instead (3) steps into a front-stance and thrusts his hips to execute a step-in-punch with his right hand as he notices the other opponent to his left. (4&5) Pulling his left leg through center, the defender drives his hips to execute a side-snap-kick to the left opponent, who then withdraws from the conflict. Then, the defender (6) reverse-rotates his hips to (7&8) execute a counter-strike-snap with his left hand to the face of the forward opponent. (9) He pauses. (10) The defender feints by thrusting his hips forward, but instead (11) steps back to a back-stance, reverse-rotates his hips to execute a knife-hand-inside-block

against the opponent's punch, (12&13) drives his hips to execute a front-kick with his front leg, then (14-16) reverse-rotates his hips to execute a strike-snap to his opponent's face with his left hand from a half-moon-stance. (17) He pauses. (18) The defender feints by thrusting his hips forward, (19) slides forward to a front-stance, and rotates and thrusts his hips to execute a counter-punch with his right hand. (20) He comes back to a ready-position.

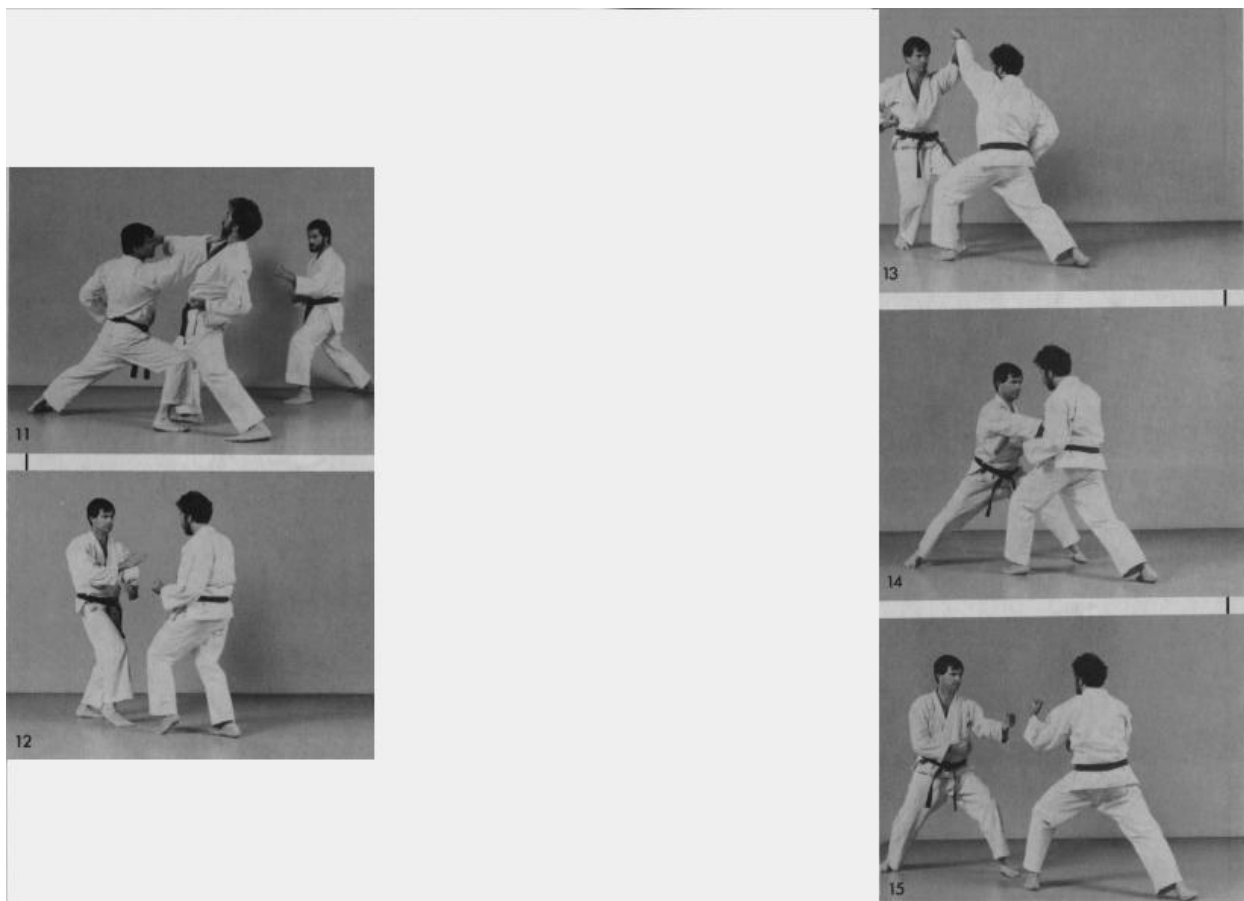




Combination No. 3

(1) From a front-stance starting position, (2) feint by circle-shifting, but instead, (3) pull your front leg back through center to (4) circle-shift into a half-moon-stance, rotate your hips to execute an ox-jaw-strike to the ribs with your right hand, and then (5) thrusting the hips into a front-stance with your right leg, rotate and thrust your hips to execute a counter-punch with your left hand. (6) Pause. (7) Pull back your right foot into an hour-glass-stance, and rotate your hips to execute an outside-round-block. (8) Feint by side-shifting, but instead (9) bring your arm through center while stepping forward into a front-stance, (10) reverse-rotating your hips to execute an inside-round-block with your left arm. (11) Pause. (12) Bring your leg through center, (13) drive your hips to execute a side-thrust-kick with your left leg, and (14) pulling your leg back through center, (15&16) reverse-rotate your hips to execute a short-punch to the face with your right hand. (17) Step back, bringing your arm through center, and (18&19) step into a cat-stance while reverse-rotating your hips to execute a tortoise-head-up-block with your left hand. Slide your hips forward into (20) an angular-side-stance, thrusting your hips to execute a counter-punch to the ribs with your right hand, and then (21) return to your ready-position.





Application of Combination No. 3

(1) Starting from his ready-position in a front-stance, the defender faces his opponent also in a front-stance. The defender (2) feints by circle-shifting to draw in the opponent. As the opponent (3) takes a full step forward, the defender steps back and circle-shifts into a half-moon-stance, reverse-rotating his hips to execute an ox-jaw-strike with his right hand to the ribs, and then (4) stepping into a front-stance, the defender follows up by rotating and thrusting his hips to execute a counter-punch with his left hand. (5) The defender pauses. (6) As the opponent attempts a punch, the defender slides back into an hour-glass-stance, and rotates his hips to execute an outside-round-block. The defender then (7) feints by side-shifting to draw the opponent's attack, then (8) drives forward into a front-stance as the opponent punches, and the defender reverse-rotates his hips to execute an inside-round-block with his left hand. (9) The defender pauses. (10) As a second opponent approaches from the right side, the defender drives his hips to execute a side-thrust-kick with his left leg to the first opponent, and (11) meets the second opponent by thrusting and reverse-rotating his hips to execute a short-punch to the face. As the first opponent retreats from the conflict, the defender (12) steps back, brings his arm through center, (13) steps into a cat-stance, reverse-rotates his hips to execute a tortoise-head-up-block with his left hand, and then (14) slides forward into an angular-side-stance, and thrusts and rotates his hips to execute a counter-round-punch with his right hand to the ribs. (15) The defender returns to his ready-position.

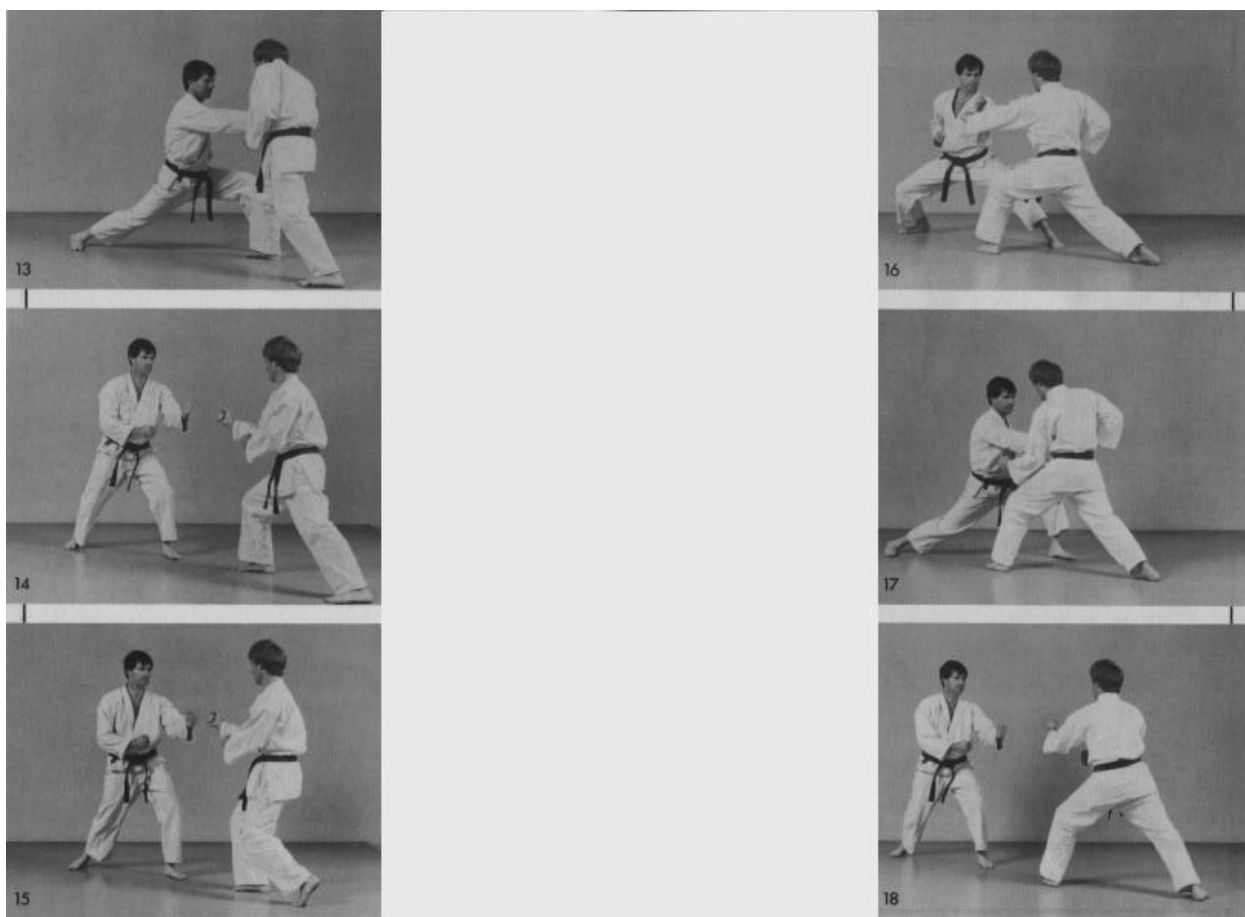




Combination No. 4

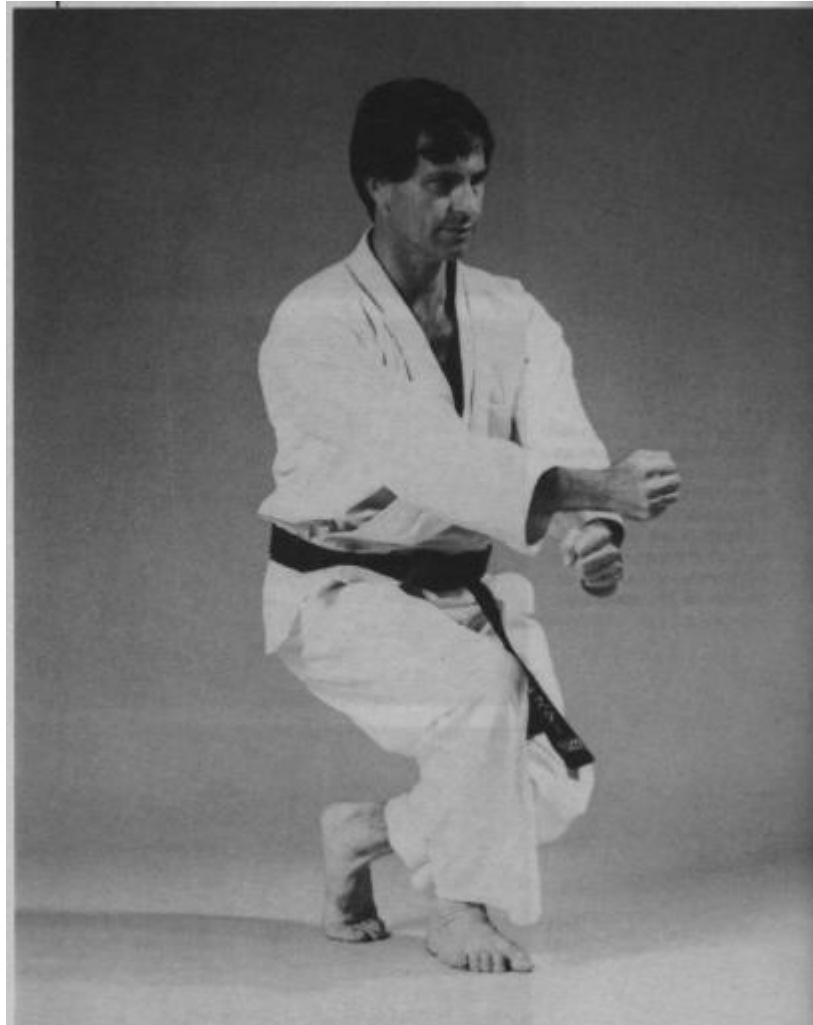
(1) Starting in a front-stance, (2) feint by thrusting your hips to execute a counter-punch in an hour-glass-stance with your left leg forward, but then (3) step back with your left foot into a front-stance, and reverse-rotate your hips to execute a down-block with your right arm. Then (4&5) drive your hips to execute a front-snap-kick with your left leg, (6) completing the snap back (7) continue forward into a front-stance, thrusting your hips to execute a punch with your left hand. (8) Pause. (9) Feint by side-shifting to a side-stance, also feinting by reverse-rotating your hips to execute an inside-round-block with the left hand, but then (10) circle-shift into a half-moon-stance, rotating your hips to execute an outside-down-block with your left hand. (11-13) Rotate your hips to execute a round-snap-kick with your right leg, then (14) pull your leg back into a front-stance, and snap your hips to execute a counter-punch with your left hand. (15) Pause. Feint by (16) thrusting your hips forward, but then (17-19) thrust back your hips instead into a back-stance, rotating your hips to execute a round-block with your left hand, and then (20) slide your hips forward into a front-stance and rotate and thrust your hips to execute a counter-punch. (21) Return to your ready-position.





Application of Combination No. 4

(1) Starting in a front-stance ready-position, the defender (2) feints by thrusting his hips to execute a step-in-punch with his right hand, stepping into an hour-glass-stance. As the opponent (3) reacts by pulling his intended kicking leg through center, the defender (4) steps back with his left foot into a front-stance, rotates his hips to execute a downblock with his right hand, then (5) drives his hips to execute a front-snap-kick with his left leg, and (6) follows up by stepping into a front-stance and thrusting his hips to execute a punch to the face with his left hand. (7) The defender pauses. (8) The defender feints by side-shifting to a side-stance, and reverse-rotates his hips to execute an inside-round-block with his left hand, but (9) as the opponent kicks, the defender circle-shifts into a halfmoon-stance, rotates his hips to execute an outside-down-block, then rotates his hips to (10-12) execute a round-snap-kick to the head, then (13) pulls his leg back into a front-stance, and snaps his hips to execute a counter-punch with the right hand. (14) The defender pauses. (15) The defender feints by thrusting his hips forward, but then (16) as the opponent attacks, he slides back into a back-stance, rotates his hips to execute an outside-round-block, and then (17) slides forward into a front-stance, rotating and thrusting his hips to execute a counter-punch with his right hand. (18) The defender returns to his ready-position.



CHAPTER FOUR

THEMATIC ELEMENTS OF SPARRING

No matter how crisp your physical techniques are, and how good your timing is, it is to your advantage to develop the flexibility to spar with a variety of thematic attitudes against different opponents.

Although there are many obvious ways of classifying attitudes in sparring, clearly it is desirable to choose a scheme that satisfies several requirements. Sparring themes should not be tied to emotions, which are relatively inflexible internal states that tend to break your awareness of your opponent and your external environment. Good themes should be directly related to proper technique, so that their practice and execution is available to the average student. Good themes should be relatively abstract, being few and general enough to be applicable to many types of interactions. They should not be too specific as to be inflexible. For example, a "step-in punch if the opponent trips" is not a good theme. Good themes, like good feinting techniques discussed in Chapter Three are not "tricks." Tricks may work once or twice with a given opponent, but they cannot be used regularly

with all opponents. Good techniques and good strategies, although requiring more work to learn than mere tricks, are dependable under many circumstances.

The particular set of themes presented here was suggested to me by Musashi's *The Book of Five Rings*. They satisfy the above requirements, and I have tested them with success in my green, brown and black belt classes. These themes are not only useful as training exercises, but as emphasized quite dramatically by Musashi, they are essential to master to become proficient in actual fighting situations.

Five basic themes are presented here, each with specific training exercises that also serve to define its basic nature more precisely. Sparring exercises are presented that illustrate how basic combinations of these can arise between two opponents. The five basic themes are Earth, Air, Fire, Water, and Void.

"Earth" is the maintenance of a strong physical centeredness, executing strong basic techniques as a classical strategy against an opponent. In the theme of Earth, stances are especially strong and rooted to the ground, so that the mass of the earth becomes an integral part of your techniques. In Shotokan schools, basic pre-black belt level techniques and combinations are suitable to practice and execute Earth.

"Air" is the ability to maintain the essence and substance of good technique-e.g., power, speed, agility-despite the necessity of relinquishing or compromising one's basic classical form. In actual sparring, often one must use other training outside the framework of one particular school. For example, in self-defense situations, or in free-sparring against good opponents, one must often move spontaneously from relatively unfavorable positions at inopportune moments. Of course, this is also true at the highest levels of performance of any physical art or sport. Karate is among the few disciplines that possess a good training method to teach the average person how to move creatively with good body techniques. However, too often the karate student sees only the outside patterns of movement. This should not be confused with the internal feeling and good timing that are acquired only after years of concentrated and disciplined study of the basic form. The theme of Air is the application of these internal feelings integrated with good timing. Air can be realized as large, quick shifting movements as if a wind were at your back, guiding you in various directions. These techniques often arise out of necessity in self-defense situations. You must be flexible with your responses, and not tied to a particular school of movement.

"Fire" is a driving, charging spirit given to every movement, typically delivered in short intense spurts. Relative to the other themes, every block and attack possesses its own will to drive through the opponent. To possess and maintain this indomitable spirit under adverse conditions, one must regularly and periodically train under adverse and stressful conditions. At lower levels, this can be accomplished by long, arduous training sessions under the directions of a ranting (but experienced and inwardly controlled) instructor.

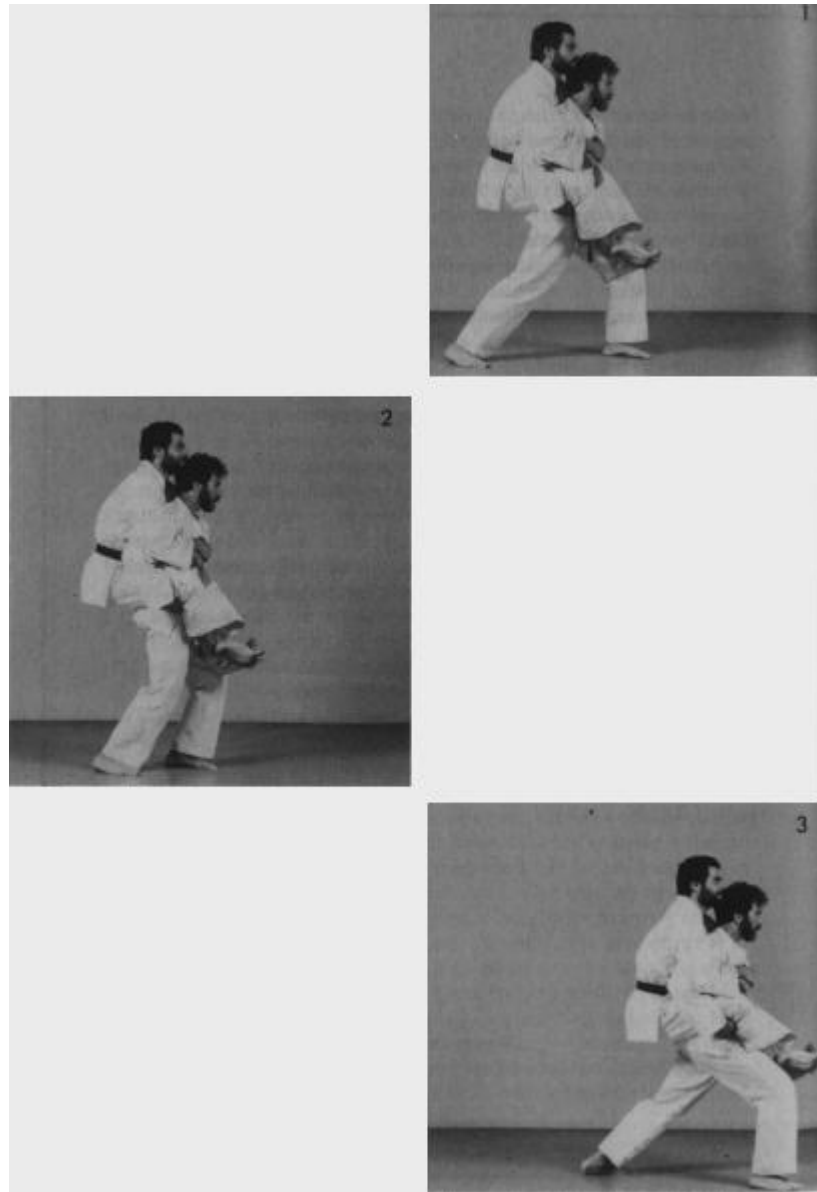
"Water," perhaps the most subtle among these first four themes, requires flexibility in rhythm and power. Like ocean waves, movements can ripple lightly to break an opponent's rhythm as he starts or ends an attack combination. They can also develop to become heavy and ponderous as final crushing attacks. In the water theme, continual rhythmic control of the interaction between you and your opponent is exercised. Turning points of this interactive rhythm, similar to tai chi transitions, are highlighted.

"Void" is a spontaneous improvisation of the other four themes. Specific exercises are given to train in its physical essence and state of mind.

EARTH EXERCISES

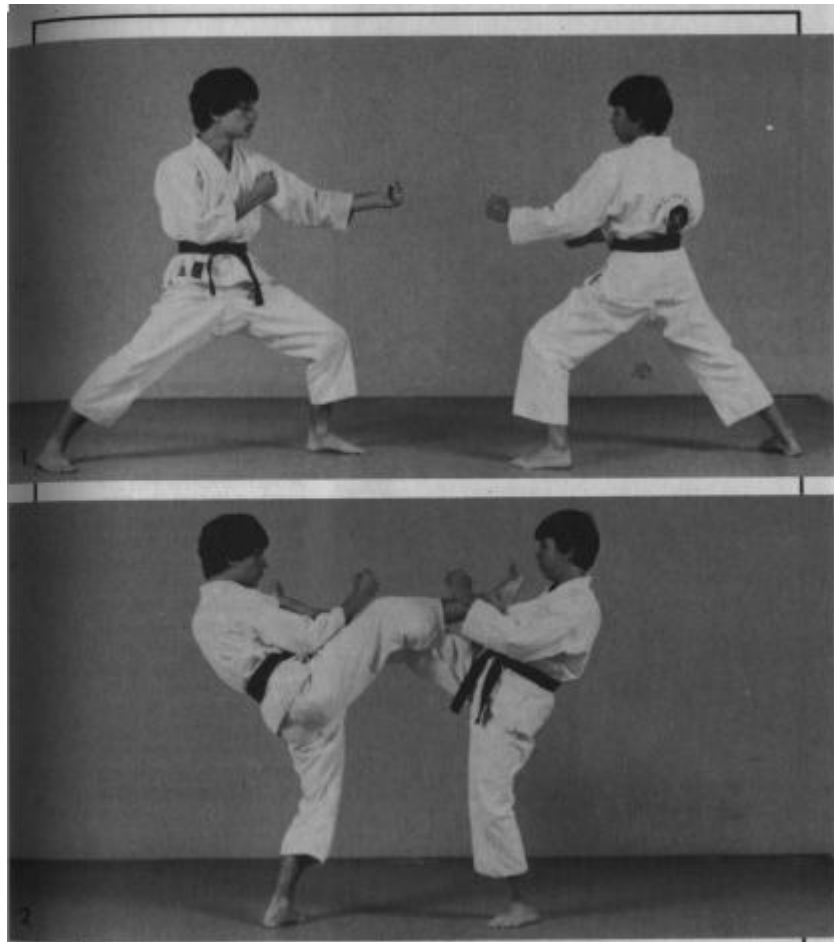
Earth Exercise No. 1

To warm up, spend 10- 15 minutes practicing the basic hand techniques: punching, blocking, striking. Then, spend another 10-15 minutes doing repetitions of your basic thrust-kicks and (missing)



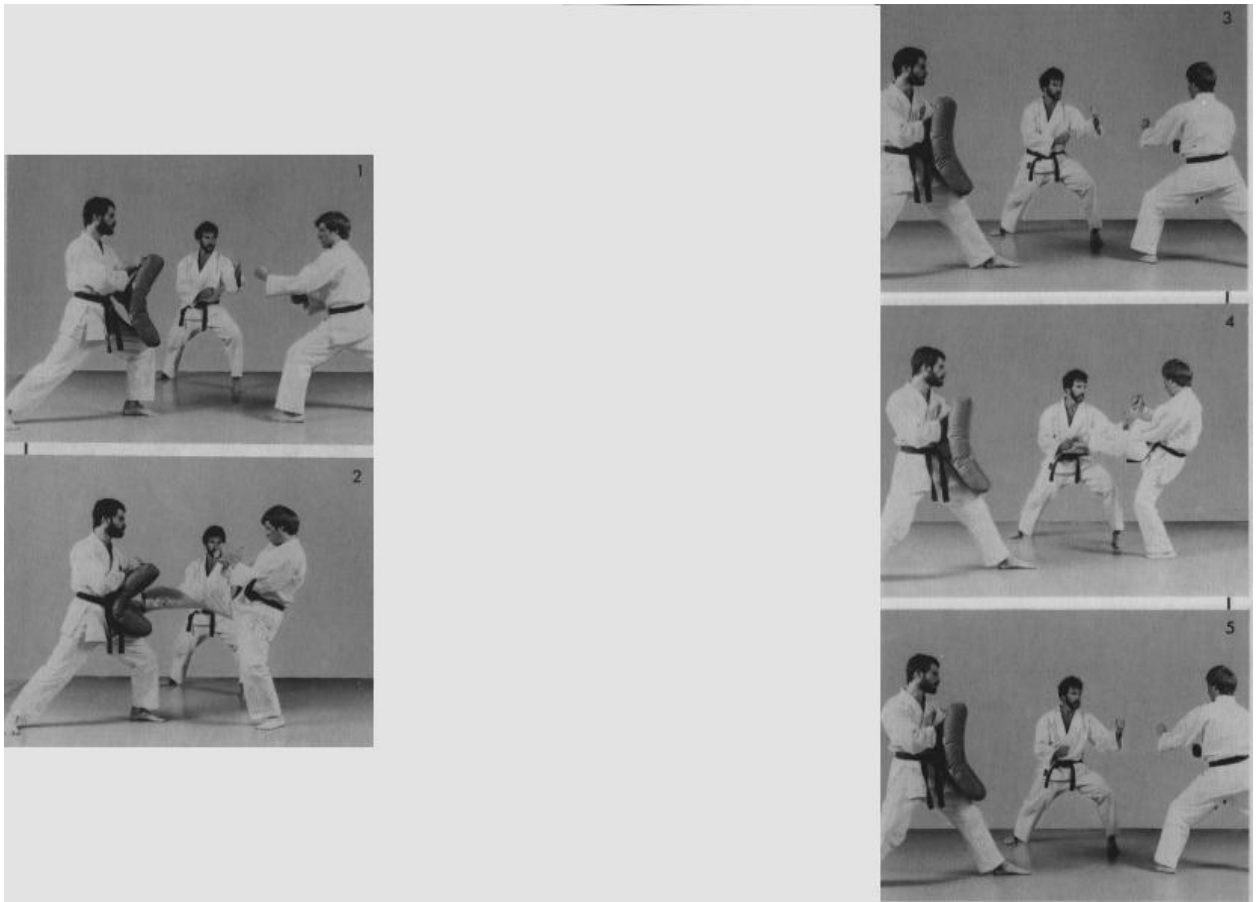
Earth Exercise No. 2

To develop a better appreciation of the use of the legs in moving, (1) take a stable front-stance and have a partner of about your same weight climb up and sit on your shoulders, with his feet hooked under your arms. (2&3) Proceed to walk forward and backward five to ten steps. This is difficult for most students, so be sure you're in the best of shape, and expect to call upon your mental and physical reserves to maintain your balance, strength and technique. To be safe, start with an opponent on your back, piggyback style, instead of on your shoulders.



Earth Exercise No. 3

To develop an awareness of applying a strong base in holding power toward an opponent, face your opponent, (1) each of you in front-stance left leg forward. (2) Both bring up your right legs to front-thrust-kick position just near each other's chin, and hold this position for one minute. You will have to keep your hips tucked under, to build a smooth bridge of tensions to help support your leg. Change legs. Do the same with side-thrust-kick, and similarly with back-thrust-kick



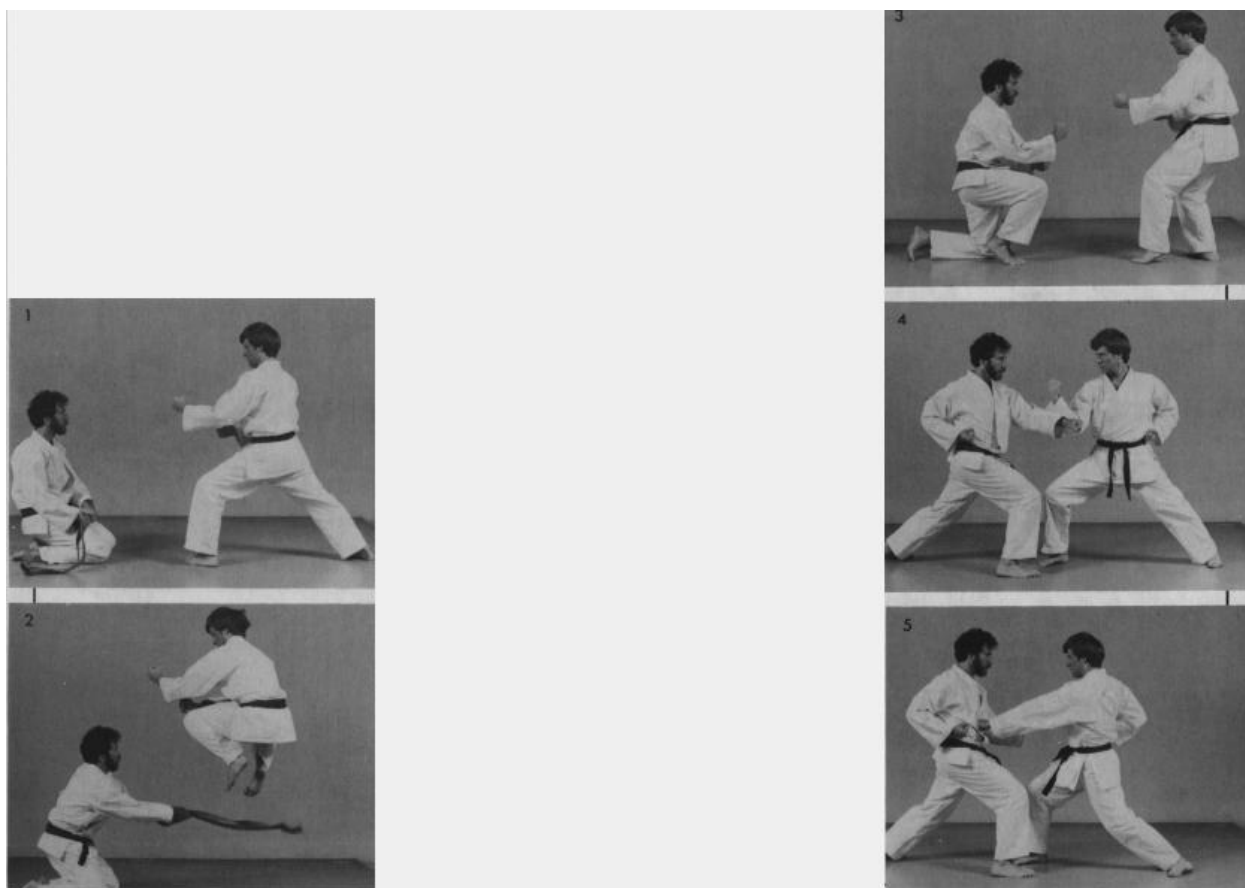
Earth Exercise No. 4

Use this exercise to develop the ability to create different qualities of power in your basic technique. Only by closely matching the masses of a projectile (an attacking body) and the target can the projectile most efficiently transfer its energy to the target. A very fast and light technique is best against a target of light mass, like the head, than a heavier technique with the same momentum. (Momentum = mass times velocity.) (1) Have two opponents stand side by side facing you. One opponent holds a heavy bag. (2) Alternately drive your hips to execute a front-thrust-kick into the bag, (3) and then turn and (4) drive your hips to execute a front-thrust-kick to the other opponent, not hitting him, but only touching his gi. (5) Then, return to your ready-position, maintaining your awareness of both at the same time. Similarly, have one of the opponents hold at face level a board around which is wrapped a gi belt. Alternately attack the board, then attack close to the other opponent's face.

AIR EXERCISES

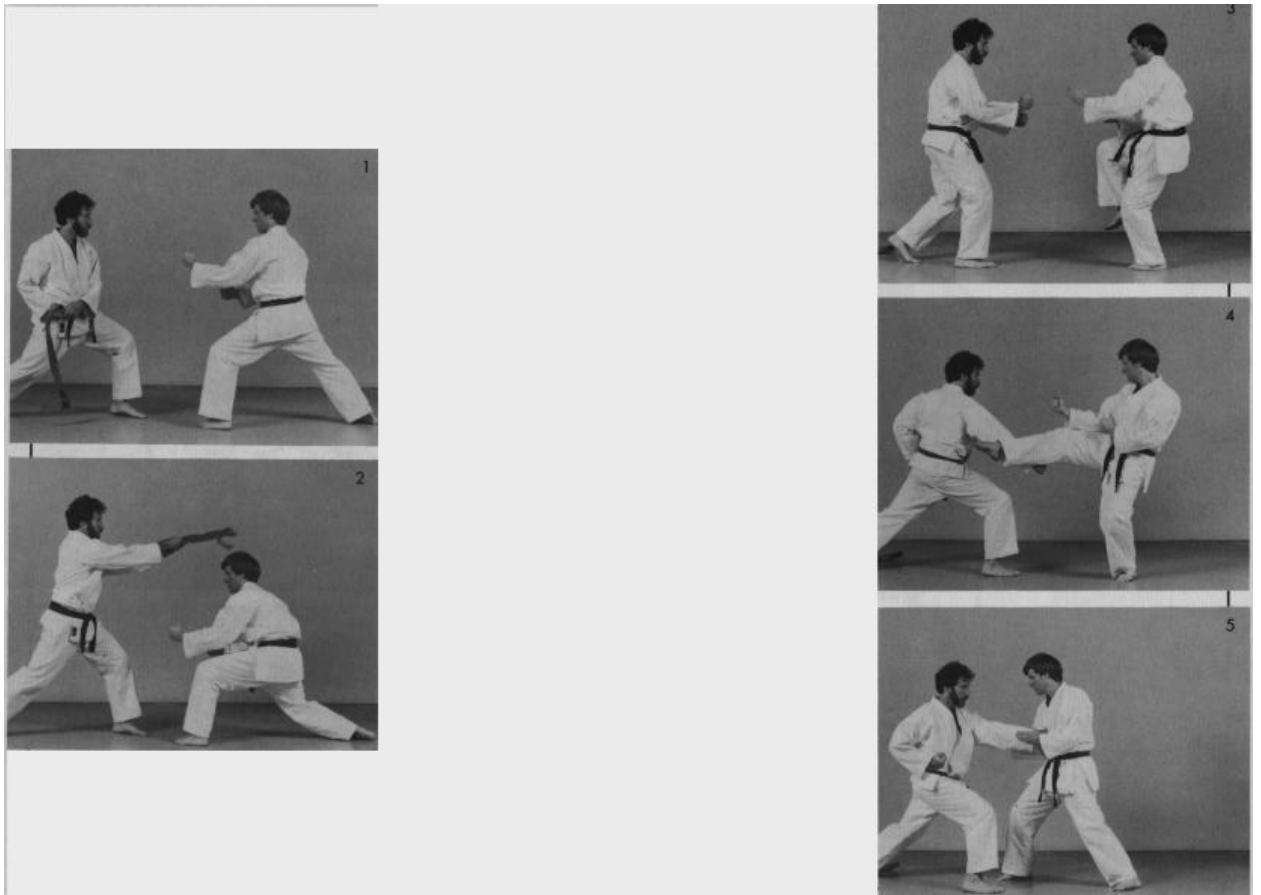
Air Exercise No. 1

Warm up with one-step sparring. The attacker can use any one attack, and the defender must block and counterattack. This exercise is designed to put both attacker and defender in situations where it is difficult to use basic techniques, although this is what they must attempt. The essence, not merely the form, of good technique must be applied.



Air Exercise No. 2

(1) From a kneeling position, hold a knotted belt while your partner stands facing you. (2) Swing the belt at his ankles, forcing him to jump over it, then (3) charge in with a punch or kick. (4) Your partner must regain his balance, block your attack, and (5) counter-attack. You can do the same exercise using a long staff instead of a knotted belt. Swing the staff or the belt just hard enough to sting, but not injure a slow partner: let your partner survive to give you the same feedback later. Reverse roles.



Air Exercise No. 3

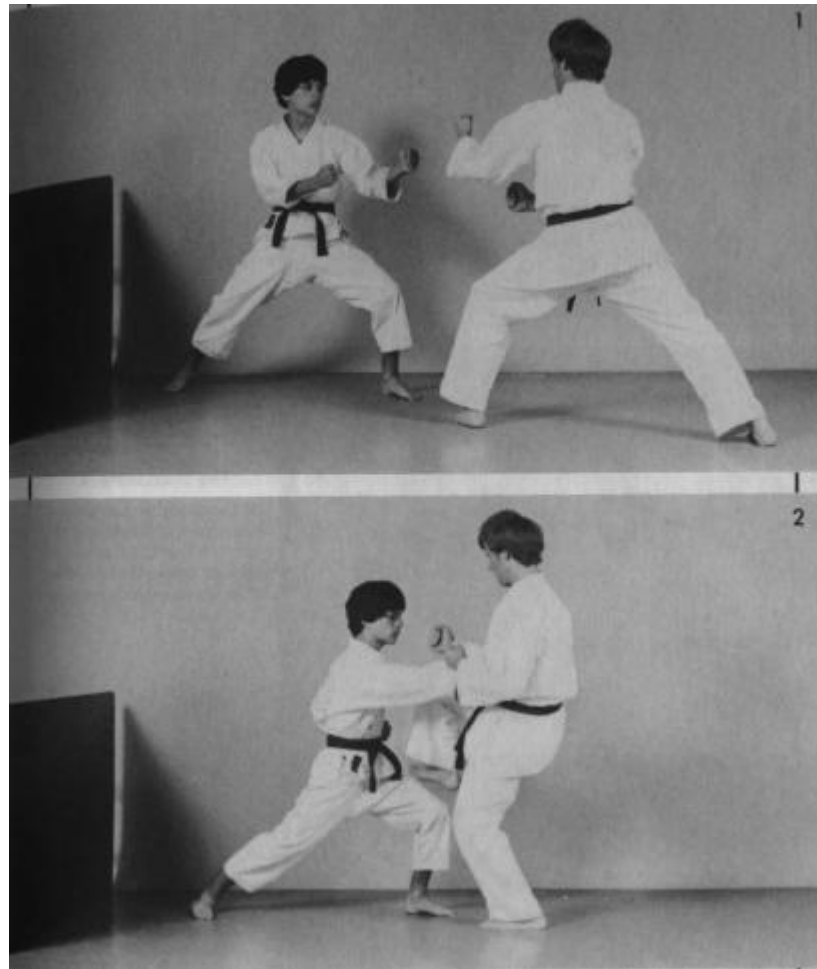
(1) Your opponent, holding a knotted belt, faces you. (2) He swings the belt horizontally at your head. You duck under the belt, then (3) attack him with a punch or kick. He drops the belt, and must (4) block your attack and then (5) counterattack. Reverse the roles. You may do the same exercise, using a long staff instead of the knotted belt.

FIRE EXERCISES



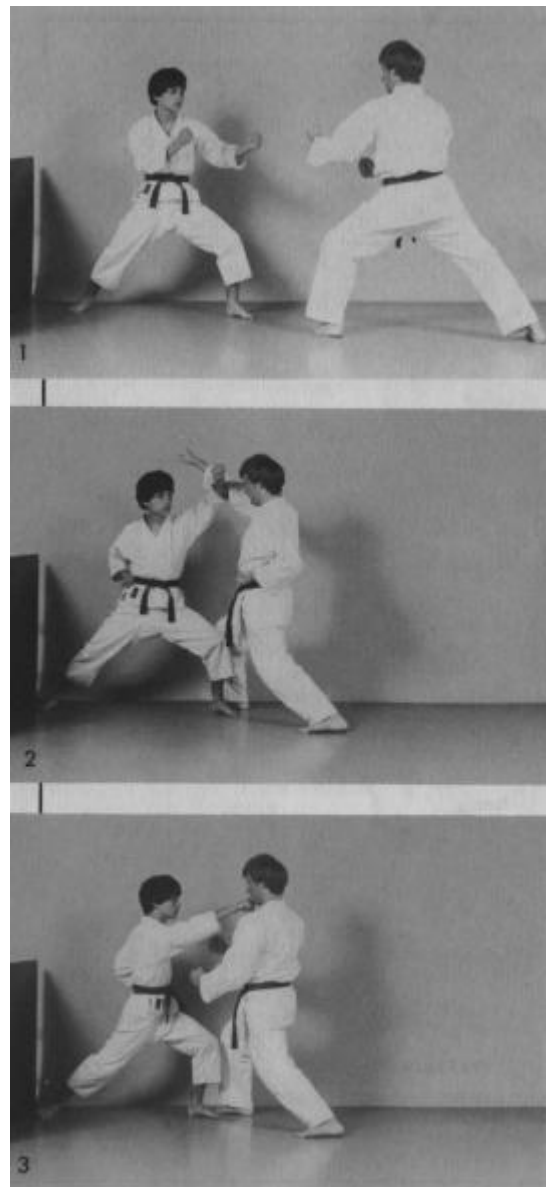
Fire Exercise No. 1

Have a warm-up with (1) all students facing each other in a large circle, large enough so that if you all kicked at the same time, no contact would be made. (2) Each student in turn counts ten repetitions of: rotate your hips to execute a counter-punch; drive your hips forward to simultaneously execute a front-kick and a punch with the arm of the same side as your kicking leg; pull back your kicking leg to become the back leg of a front-stance; and snap your hips to execute a counter-punch; then reverse-rotate your hips to execute a down-block, (3) ready for the next count.



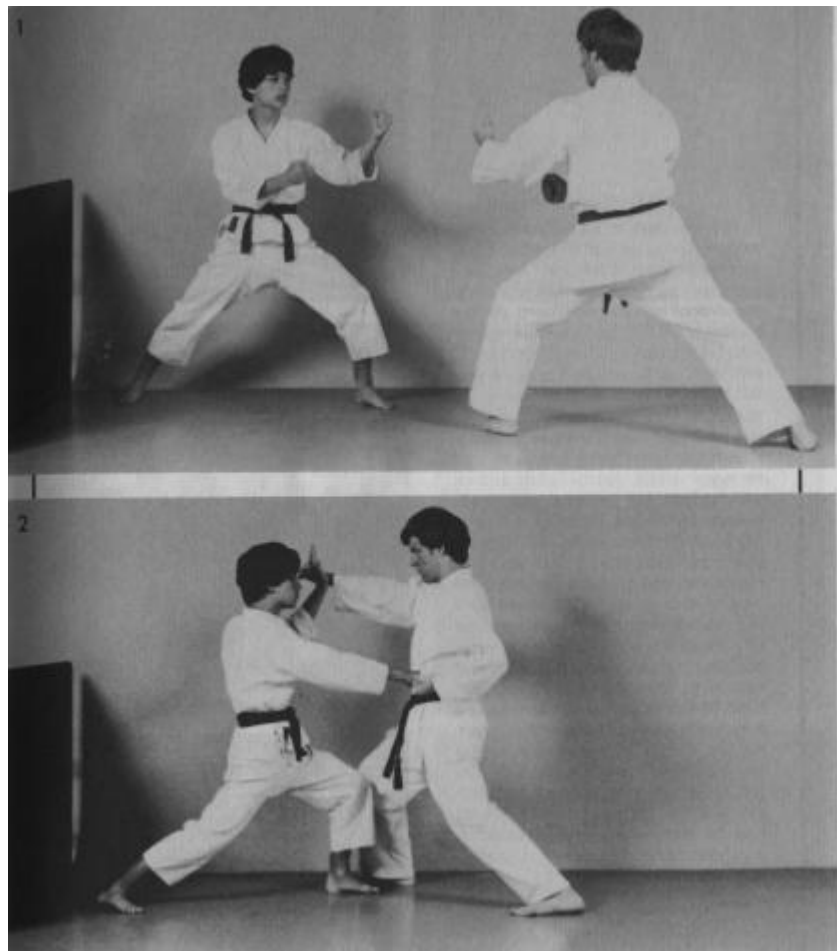
Fire Exercise No. 2

(1) A defender, with his back to a corner, faces an attacker. As the attacker begins his assault with a punch or a kick, (2) the defender attempts to focus an attack of his own before the attacker can focus his.



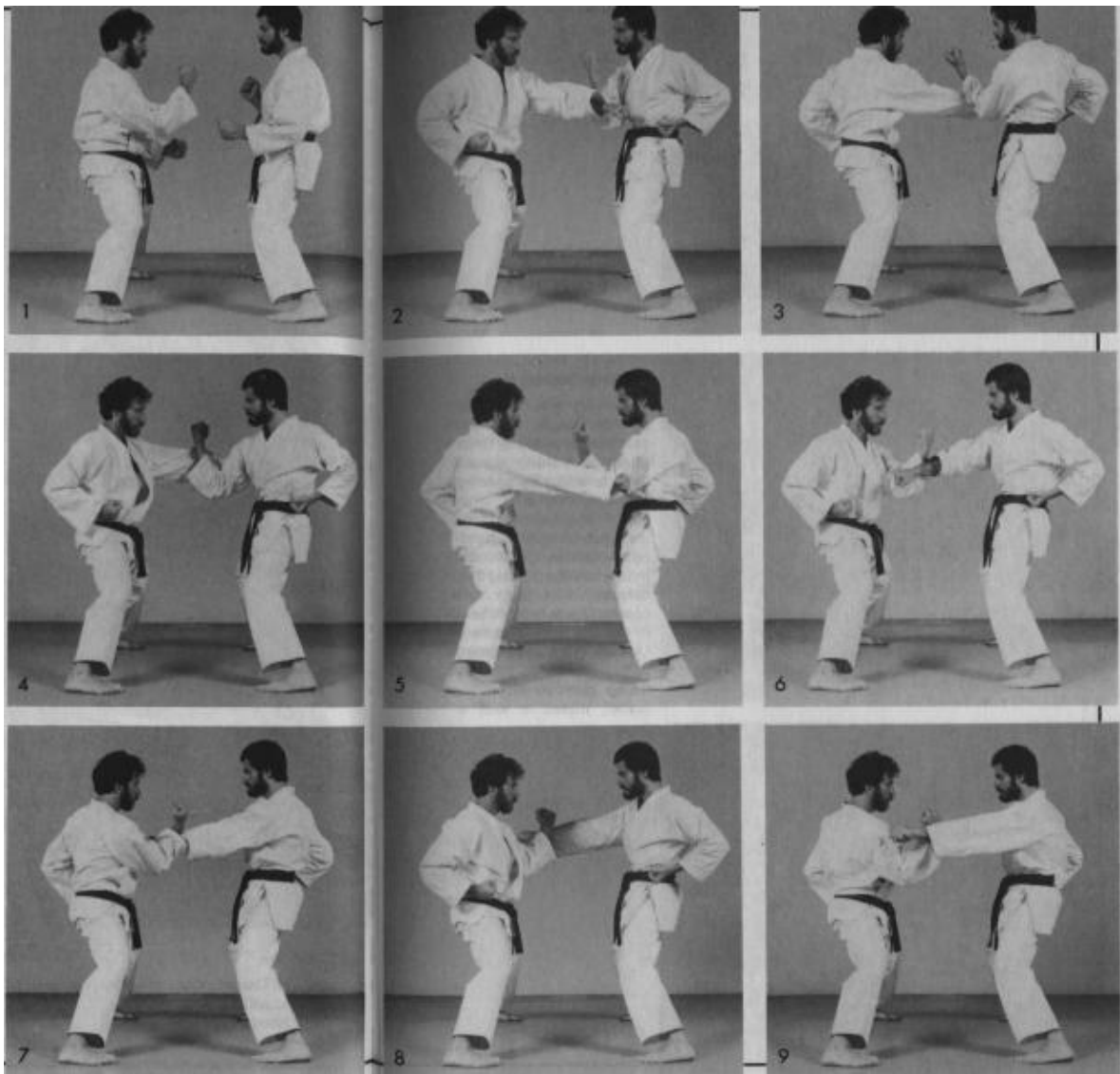
Fire Exercise No. 3

(1) The defender, backed into a corner, (2) blocks the attacker's assault, and (3) counterattacks before the attacker has the chance to attack again.



Fire Exercise No. 4

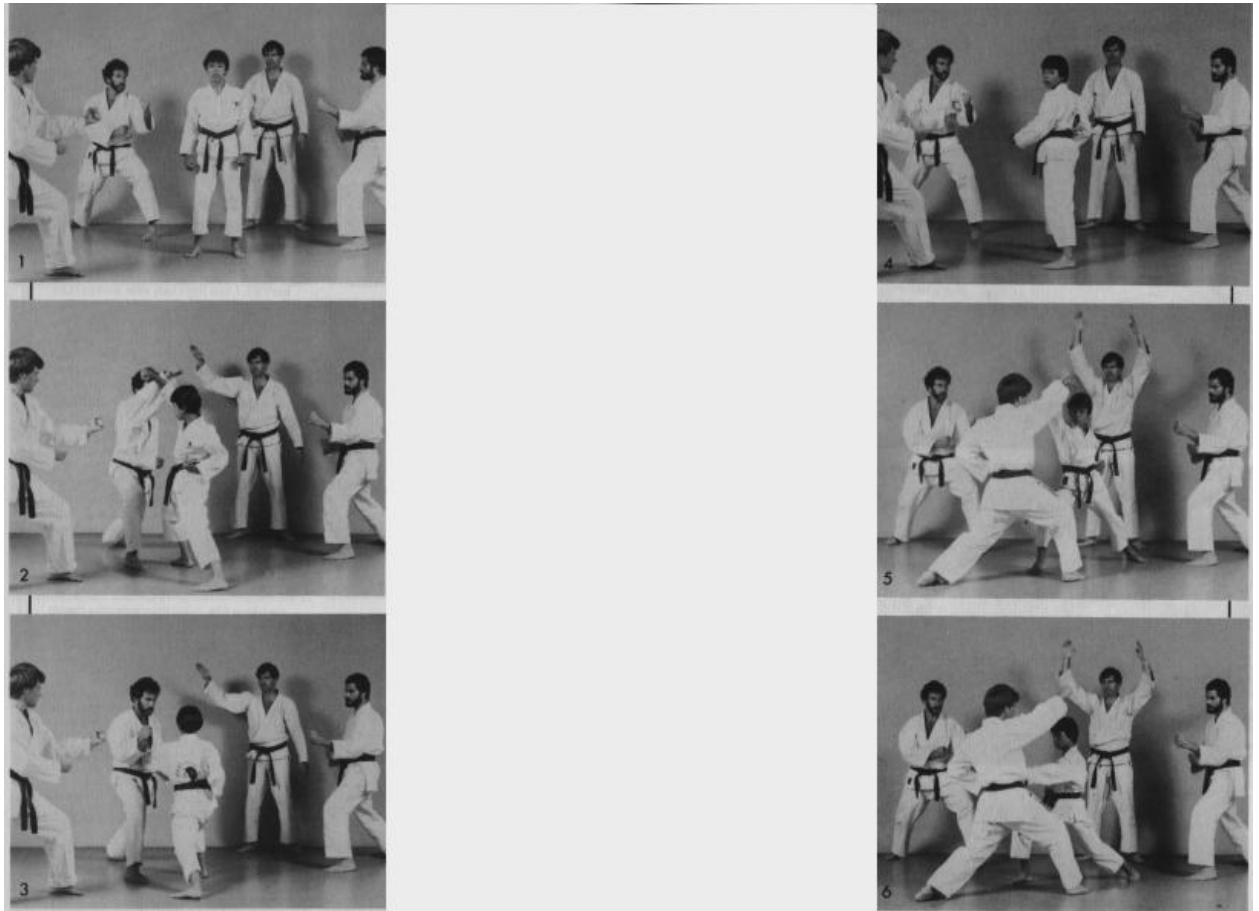
(1) The defender, backed into a corner, faces an attacker, but (2) the defender attempts to shift or bend, and focus an attack of his own at the same time the attacker would have focused his.



Fire Exercise No. 5

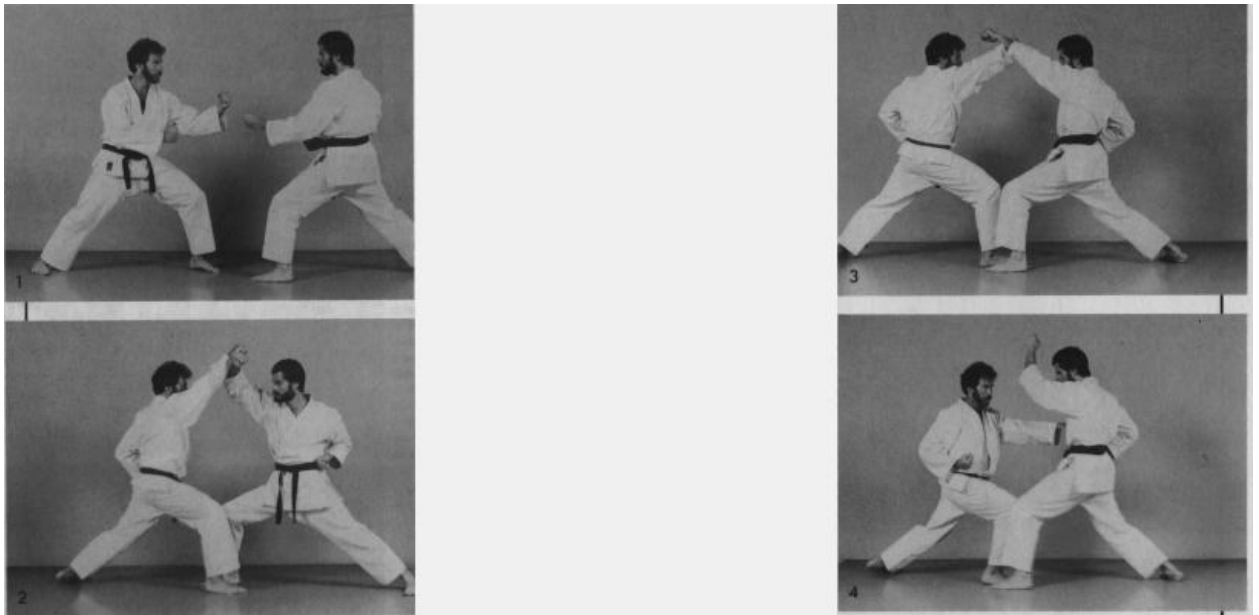
(1) Face your partner, both of you in a side-stance. (2) Your partner snaps his hips to execute a punch with his left hand, and you snap your hips to execute an outside-round-block with your right hand. (3) Your partner snaps his hips to execute a punch with his right, and you snap your hips to execute an outside-round-block with your left hand. (4) Your partner snaps his hips to execute a punch with his left hand, and you snap your hips to execute an inside-round-block with your right hand. (5) Your partner snaps his hips to execute a punch with his right, and you snap your hips to execute an inside-round-block with your left hand. (6) Reverse roles as you snap your hips to execute a punch with your right hand, and your partner snaps his hips to execute an outside-round-block with his left hand. (7) You snap your hips to execute a punch with your left hand, and your partner snaps his hips to execute an outside-round-block with his right hand. (8) You snap your hips to execute a punch with your right hand, and your partner snaps his hips to execute an inside-round-block with his left hand. (9) You snap your hips to execute a punch with your left hand, and your partner snaps his hips to execute an inside-round-block with his right hand.

WATER EXERCISES



Water Exercise No. 1

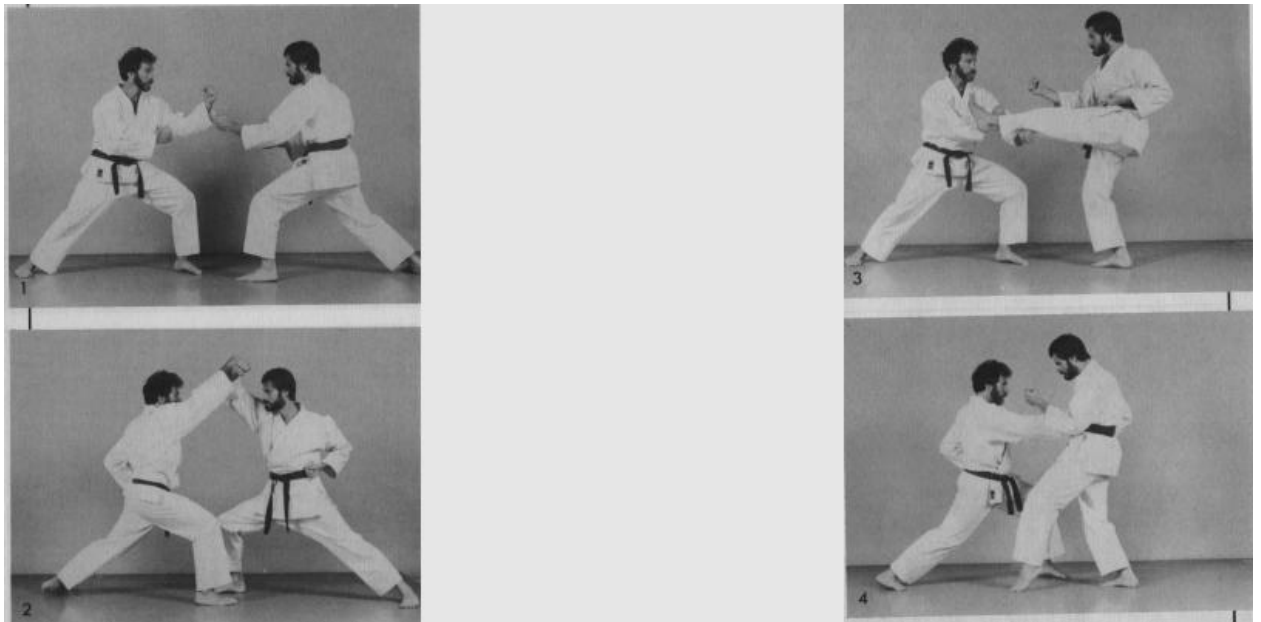
Warm-up your global awareness. A defender stands surrounded by three attackers. A starter signals them to attack by pointing at them, one at a time. (Each attacker therefore also maintains an expanded awareness of the defender and the starter.) The defender must block and counterattack each attack. (1) As the three attackers face the central defender, (2) the attacker to the left, taking his cue from the starter, moves in with a punch, and the defender blocks his assault while preparing for a counterattack. (3) The defender counters with a counter-punch to the midsection of the first attacker, and (4) attempts to regain a total awareness of all three attackers. (5) The forward attacker, receiving his cue from the starter, launches his attack which the defender blocks, and (6) counters with a counter-punch to the midsection.



Water Exercise No. 2

(1) Two opponents face each other. The attacker on the left (2) steps in with a punch, and the defender on the right blocks. Then, the defender (3) steps in with a punch which the attacker blocks. The attacker (4) counterattacks with a counter-punch to the midsection.

Note: You can perform a variation of this exercise. Instead of the defender stepping in with a simple punch in step 3, he steps in with a front-snap-kick followed by a punch. The attacker must then block both a kick and a punch before counterattacking with his counter-punch to the midsection.



Water Exercise No. 3

This is also a variation of Water Exercise No. 2. (1) The two opponents face each other. The attacker on the left (2) steps in with a punch to the face, and the defender on the right blocks. Then, the defender (3) drives in with a front-thrust-kick to the midsection which the attacker blocks with a two-hand-sweep-block, and (4) counters with a counter-punch to the defender's midsection before the defender can follow up with another punch.

Note: So far there have been three variations of Water Exercise No. 2. Step 3 of each of these provides the defender with a different combination. A fourth variation can be performed. This time, the defender spontaneously chooses one of the step 3 combinations. The attacker will not know ahead of time what the defender will be using. He must catch the rhythm of the defender, and accordingly decide whether to make a stand, to fall back and counterattack, or to reverse his momentum and oppose his opponent's attack.

VOID EXERCISES



Void Exercise No. 1

Set a (kitchen) timer for 20 minutes. Sit kneeling without moving, keeping your mind open and free from distractions.



Void Exercise No. 2

Set the timer for five to ten minutes. Free-spar against imaginary opponents. At the inception of each imaginary interaction, use the strategy of Earth, Air, Fire, or Water.

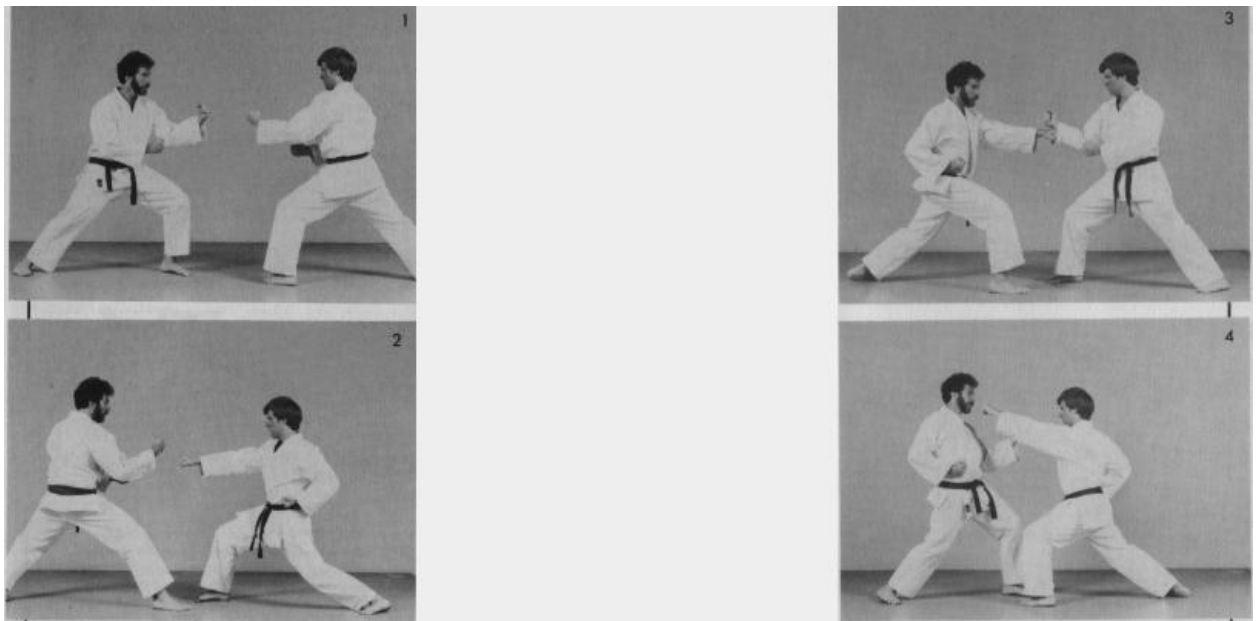
SPARRING EXERCISES

The following exercises are designed to safely permit students to pursue the above themes in constrained free-sparring situations. It has been my experience that only strong coordinated black belts should be permitted to spar fast. Others should spar just fast enough to move dynamically, but not fast enough to sustain injuries if they collide (and they will).



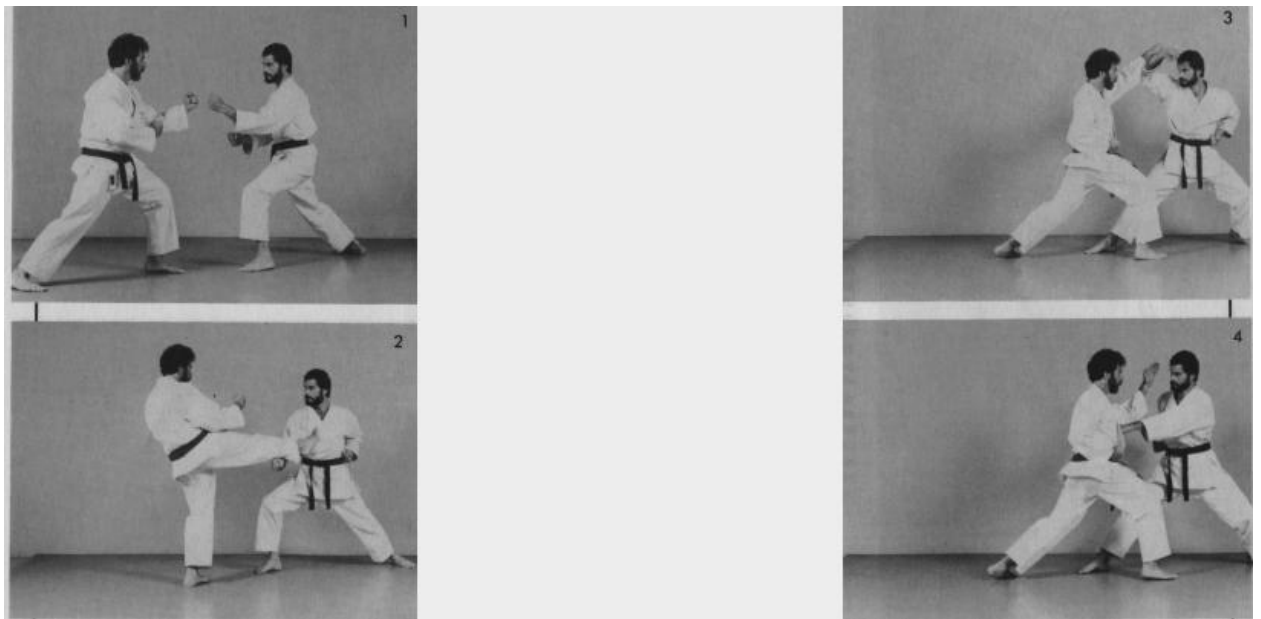
Earth Sparring

Tie one end of a gi belt around yourself, and the end of another belt around your opponent (slip-knots will allow you to step in and out of the loops). Stay apart, just barely out of kicking range, and attach the two free ends of the belts together. Now free-spar. Each technique must be meaningful and correct since each of you is always within range to take advantage of the other one's weak attacks or blocks



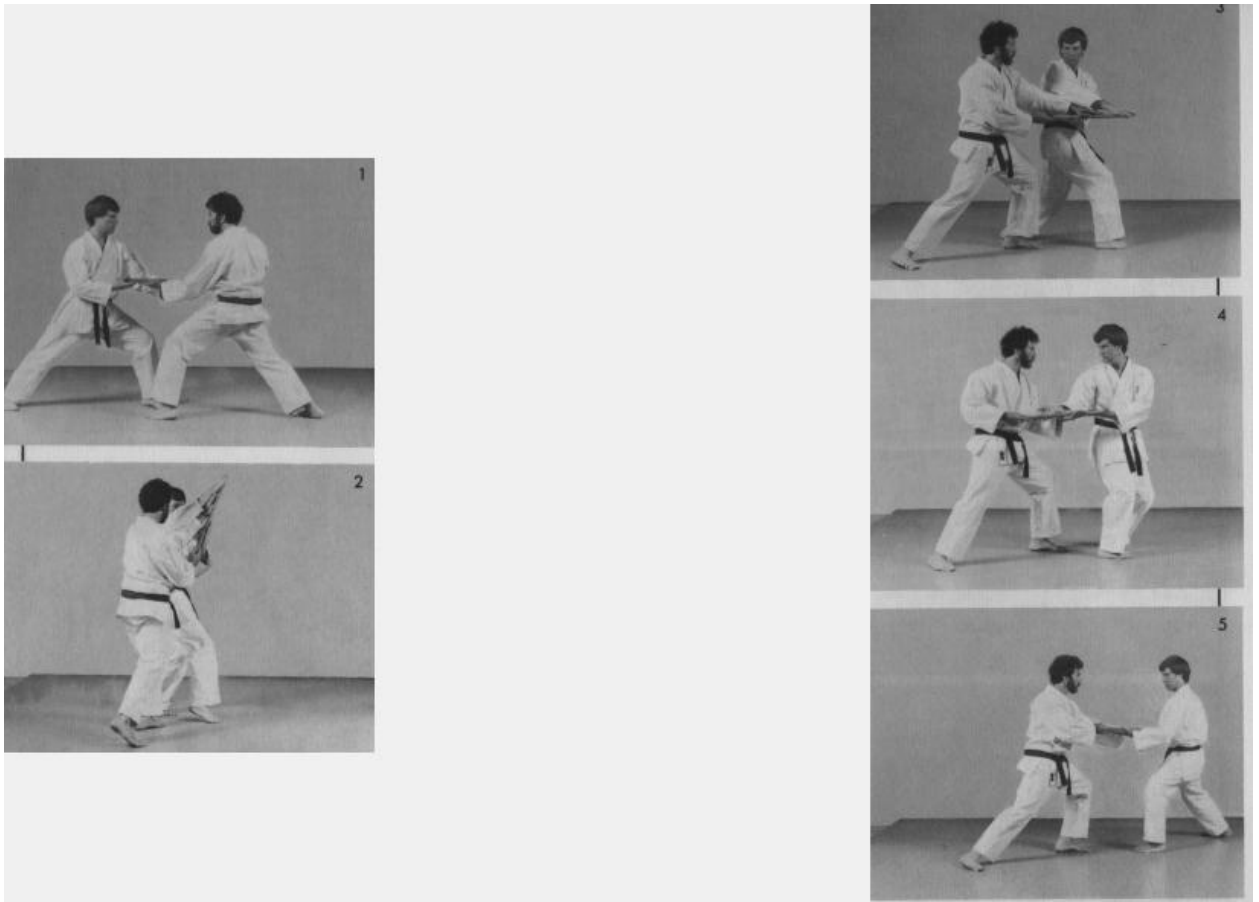
Air Sparring

This exercise is designed to develop counterattack responses. The attacker assaults the defender with one technique and the defender tries to block or avoid the attack, and counterattack. The defender's response must proper. The three elements of proper counterattack are: proper technique; timing (not counterattacking the same time being attacked); and proper distance (his attack must touch the attacker, not hit him, and not only come close). If the attacker's first attack is successful, that is, if he touches the defender with it, or if the defender's counterattack is not proper based on the three criteria mentioned, the attacker immediately follows with another technique and another until the defender counterattacks properly. Once the defender correctly counterattacks, the attacker and defender come to a neutral position, and the roles are switched, and the exercise continues. (1) The attacker and defender face each other in ready positions. (2) The attacker is too far away to score. (3) The attacker presses an attack, but the defender slides out of range, and (4) delivers a barely acceptable counterattack.



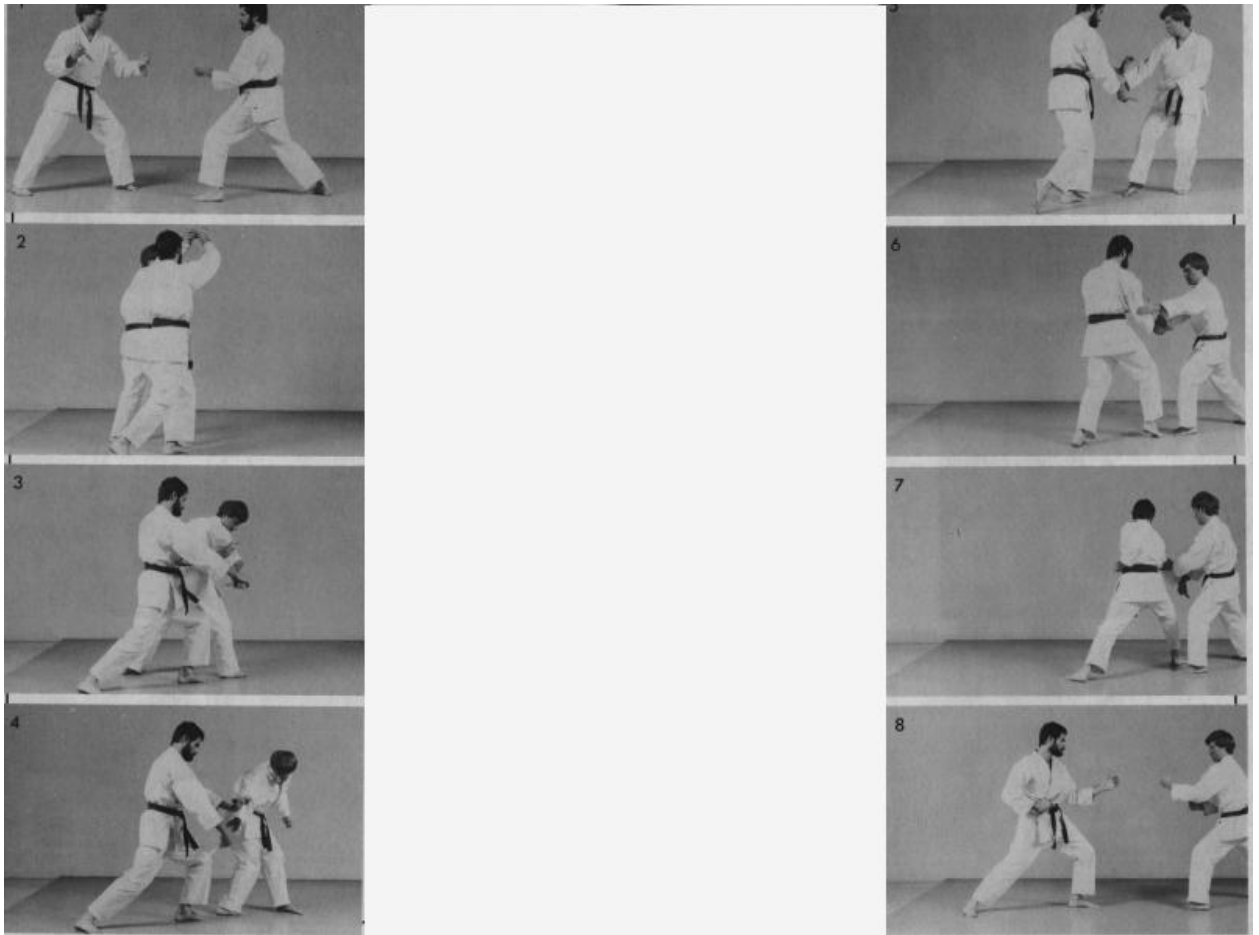
Fire Sparring

This free-sparring exercise trains the attacker to charge effectively, not blindly. The defender spars using the delayed counterattack strategy of Fire Exercise No. 3, blocking, and then countering before the attacker has a chance to attack again. The attacker on the other hand charges in spurts of three to five techniques, but always aware of the proper timing of each assault to take advantage of the defender's responses. (1) Two opponents face off in ready positions, the defender assuming a relatively cautious attitude. (2) The attacker drives in with a kick which is swept away by the defender. (3) Before the defender can counterattack, the attacker presses in with another attack which is blocked in a back-stance. (4) Then, the defender quickly presses a counterattack from his back-stance.



Water Sparring

To give students conscious feedback on subtle sparring points, this tai chi type of exercise is performed by having opponents spar slowly, with all four hands sliding along and softly holding a stick about 30 inches long. The idea is to move to thrust or slice with the stick, but only with control of rhythm, not power. The center of the stick should move only at a constant smooth speed, e.g., a walking pace. Opponents should pay attention to project the force of their bodies through their hands, and not use only their arms or shoulder muscles. Although rarely will an attack ever be finished, as the defender can usually finally evade the coming thrust or slice, the battle becomes one of continuously trying to capture the leadership of their mutual rhythm. (1) Both partners begin by gently holding a stick between them. (2) One opponent begins with an attack, initiating a slicing technique, while the defender begins to circle-shift away. (3) The defender circle-shifts away from the attacker's technique, and (4) gaining control, attempts a thrusting attack from which the attacker shifts away as (5) both come back to their neutral position



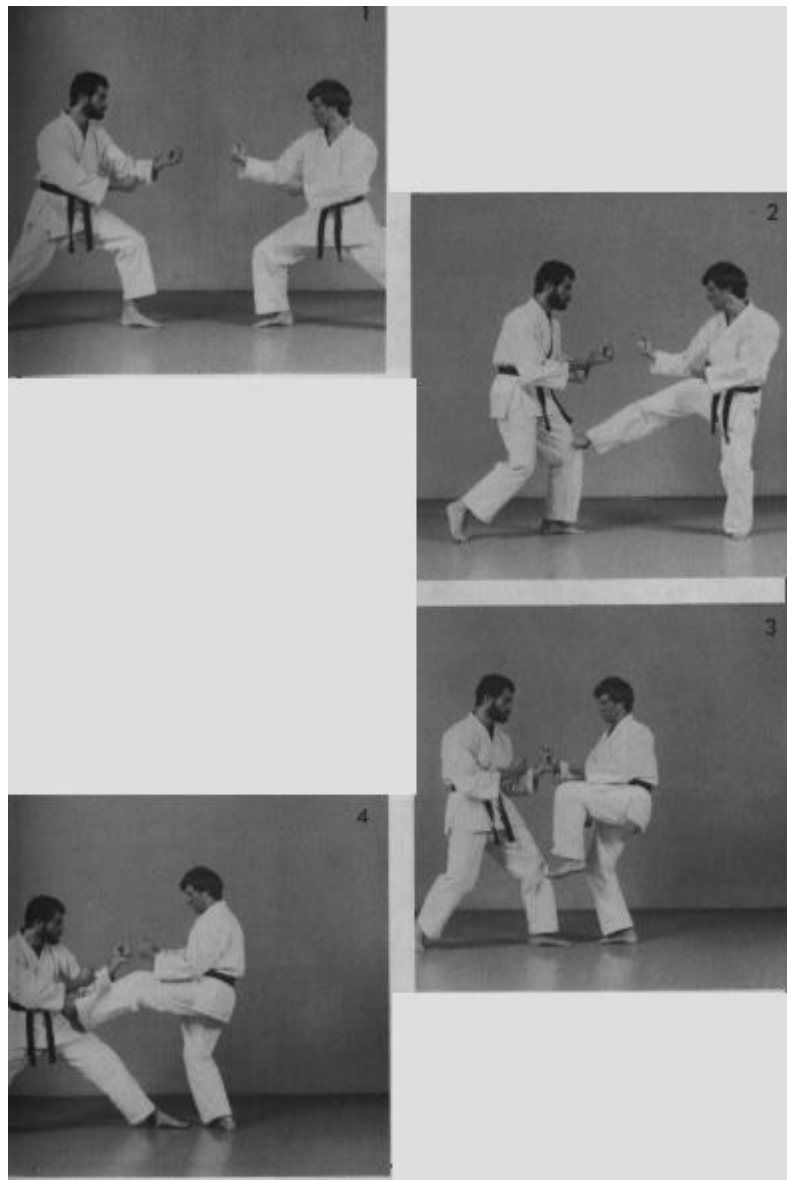
Water Sparring Applied to Knife Defense

The movement practiced in the tai chi stick-sparring, can be used in practicing knife defense. (1) As the attacker attempts a slicing attack, (2) the defender circle-shifts away. (3) The defender sweeps down to grab the attacker's wrist while exerting torquing pressure on the elbow. (4) The defender twists the knife away from the attacker. (5) The defender then thrusts toward the disarmed attacker who (6) shifts away from the attack, being careful to keep contact with the knife hand. (7) The disarmed attacker shifts past the back of the lunging defender, and (8) both return to ready-positions.



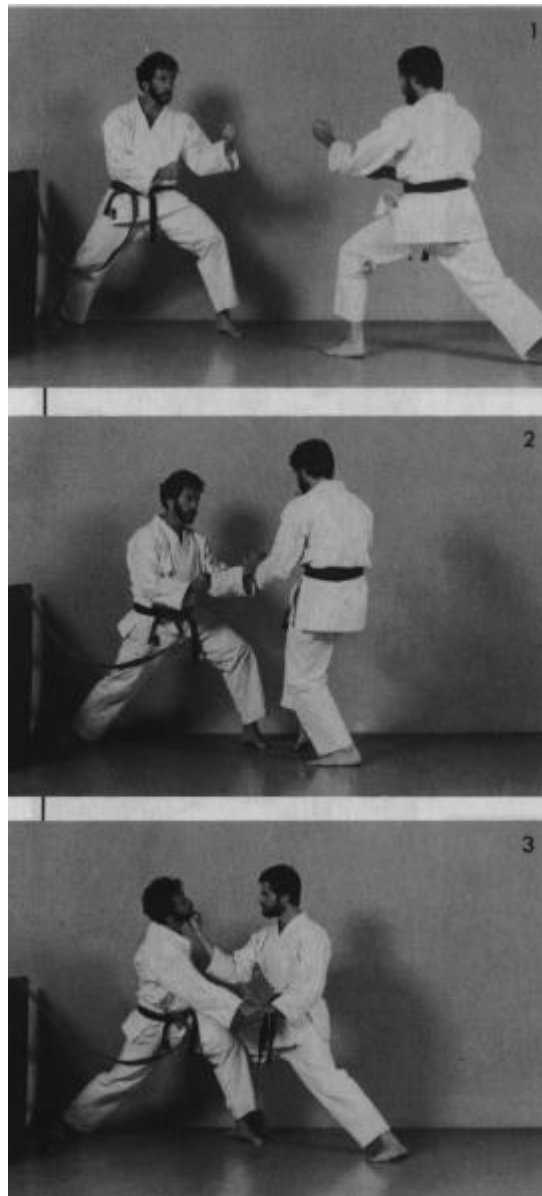
Earth/Air Sparring

In this situation, Earth must wait, and commit to good basic techniques. Air must change the angle and distance of his attacks in an attempt to find weaknesses in Earth without losing control himself. (1) With Earth tied to a corner, his opponent, Air, presses with large-movement attacks. (2) Air starts to drive in with a round-kick, but (3) Earth stands his ground and counterattacks before the focus of the kick



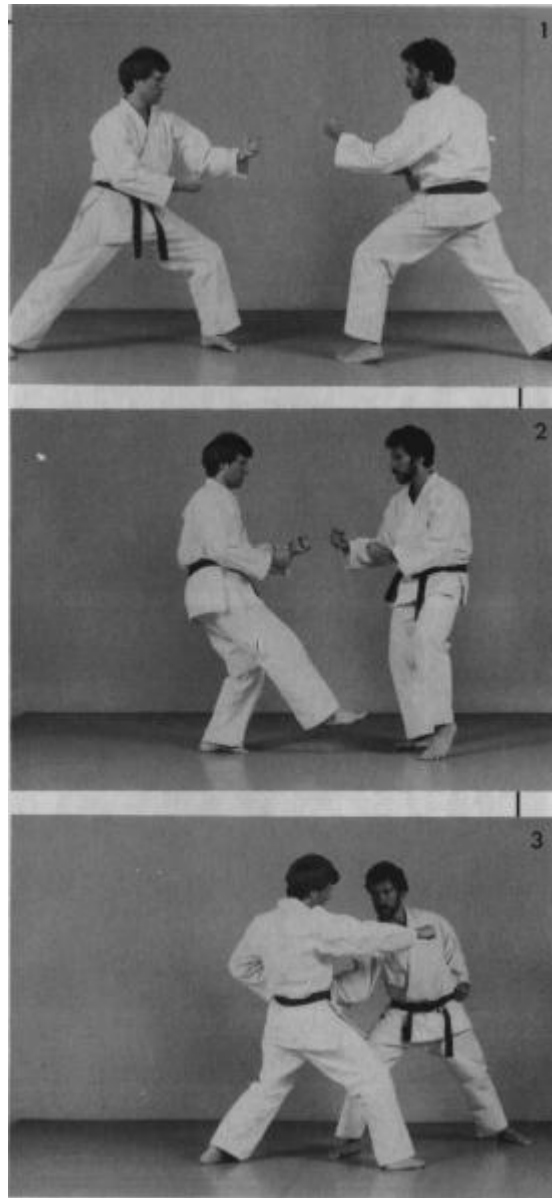
Fire/Water Sparring

Fire attacks in spurts of three to five techniques. Water tries either to interrupt the start of Fire's charge, or to apply small breaking techniques near the end of the charge, to gain leadership of the sparring rhythm, and then to follow with strong final attacks. (1) Water tries to use proper timing and a variety of small breaking techniques against a pressing Fire attack. (2) Water interrupts Fire's charge with a small breaking technique to the knee. (3) Water follows with a massive final attack, and (4) wins with a solid front-thrust-kick.



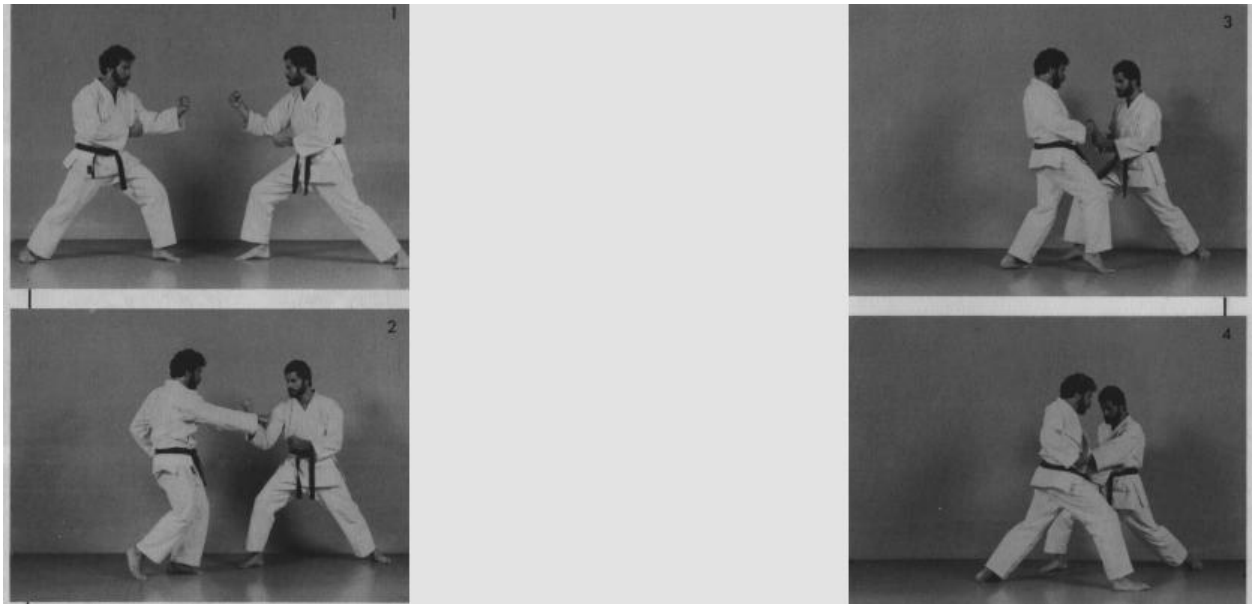
Earth/Fire Sparring

(1) Earth is in a corner, facing an impending charge by Fire. (2) Fire charges in with a punching technique, and (3) Earth counterattacks, but Fire sweeps it away at the same time that he focuses his punch on Earth.



Air/Water Sparring

Air must do large shifting movements. Water must do three to five step combinations that start with small breaking techniques and end with large final techniques. (1) Water on the left faces Air on the right. (2) Water attempts to sweep Air, but Air starts to circle-shift away. (3) Air successfully circle-shifts away from Water's sweep, and also delivers a strong close-punch.



Air/Fire Sparring

Fire charges with three to five step combinations. Air must always do large shifting movements with each technique, and will do best by using lateral shifting as a defense to break the opponent's charges. (1) Air on the right faces Fire on the left. (2) Air circle-shifts away from Fire's charge. (3) Fire attempts to change momentum to follow Air who is initiating a counterattack. (4) Air successfully avoids Fire's charge and counterattacks.

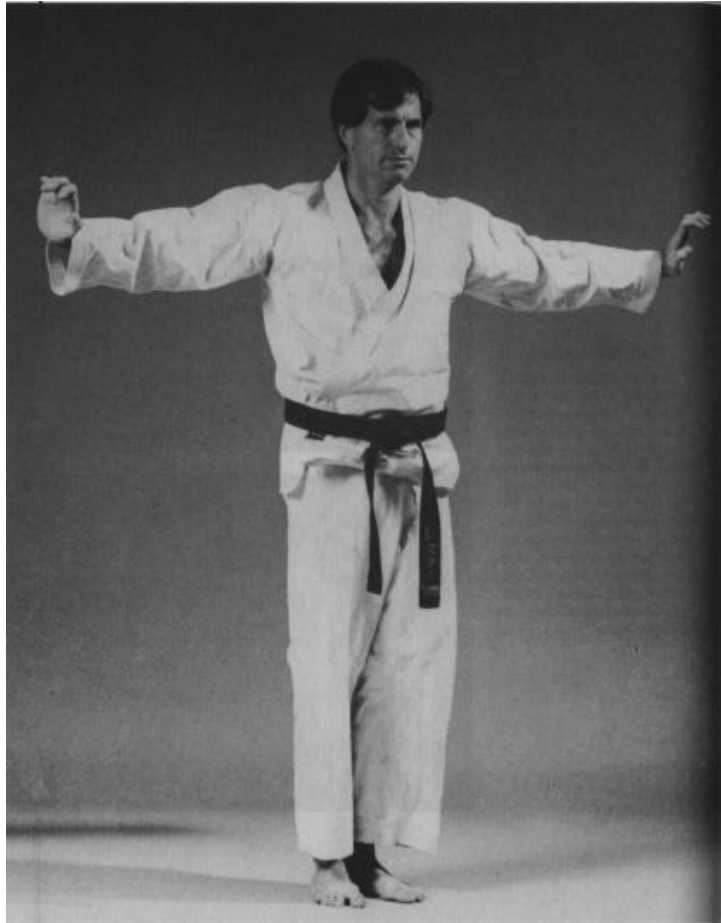


Earth/Water Sparring

Earth is backed to a wall. Water tries to break into Earth's space with small techniques and feints, and follow with strong final techniques. (1) Water on the left faces Earth on the right. (2) Earth circle-shifts to gain some timing as water feints a step-in-punch. Water (3) attempts to drive in another attack, but Earth has the advantage in timing, and Earth (4) wins with a counterattack.

Void/Void Sparring

Void/void sparring can be practiced by having the opponents each commit secretly to one of the four basic themes-Earth, Air, Fire, or Water-each time they engage. They each choose a new theme for every engagement. To enforce these conscious choices, after three or four engagements, they stop the match, and each opponent states what his choices of themes were.



CHAPTER FIVE

THE PHYSICAL REALITY OF YIN AND YANG

Does the concept of yin and yang really make any sense? Or do we use it merely to motivate, or to explain away experiences that mystify us? Why bother with these problems? Spending so much time twisting into knots certainly won't help make you rich!

However, this is an important problem for all true karateka. As discussed in Chapter One, good teaching methods are based on up-to-date knowledge of learning and memory processes. It is practical and reasonable for you to accept that learning is inherently structured by those common mechanisms by which our brains process information. And so, necessarily, you want to be involved in the type of training that attends to the realities, not the fictions, of human information processing.

There are at least two ways that we can firmly establish the existence of yin and yang: First, we might reasonably prove that yin and yang exist outside of our human experiences, as do the earth, sky, flowers, rocks, atoms, etc. For example, yin and yang might be some organization of patterns shared by these otherwise different physical systems. Many people have argued for this choice. Or, second, we might reasonably prove that yin and yang exist only in our minds, and therefore

our human experience is essential to establish yin and yang. For example, some people argue that right and left hemispheres of the brain process information and memories according to processes just like yin and yang. Later in this chapter, I will argue instead that, in any area of the brain, small groups of neurons process detailed information and memories similar to yang, while larger groups of thousands to millions of neurons process patterns of information and memories similar to yin.

According to the second choice, yin and yang are perceptual and attentional filters of our languages and memories. Therefore, we can justifiably argue that our languages and memories reflect yin and yang in their basic structures and functions. This being so, it remains for us to demonstrate this in each case, just as we seek to demonstrate the influence of atomic structure on the nature of physical substances. Clearly then, it would be advantageous for us to construct teaching, learning, and sparring strategies based on yin and yang, in order to promote efficient interactions within ourselves, as well as between ourselves and our physical, biological and social environments. In this context, we may view karate training as a prototypal discipline that offers this individual and societal service of training in yin and yang.

Using the scientific method to further explore this issue gives us a common objective tool to validate and describe what our investigations show. However, you could also argue that science itself is shaped or filtered by our brains. Since our brains are part of physical nature, do they therefore have the same structure as other physical objects, and therefore our filters of reality are not so severe? Although the scientific method helps to objectify our common findings, whether the world is what we perceive it to be remains an open question.

Intuitions of Yin and Yang

The scientific method applied to human perception can be like looking for a needle in a haystack unless there is first some good human intuition guiding our approach to this problem.

This self is the honey of all beings, and all beings are the honey of this Self. - Chandogya Upanishad 2.5.14 (c. 800-500 B.C.)

Before heaven and earth had taken form all was vague and amorphous. Therefore it was called the Great Beginning. The Great Beginning produced emptiness and emptiness produced the universe.... The combined essences of heaven and earth became the yin and yang, the concentrated essences of the yin and yang became the four seasons, and the scattered essences of the four seasons became the myriad creatures of the world. -Anonymous work compiled at the court of Liu An (c. 2nd century B.C.)

Knowledge is the conformity of the object and the intellect. -Destructio
Destructionum Averroes (1126-1198)

It is impossible to dissociate language from science or science from language, because every natural science always involves three things: the sequence of phenomena on which the science is based; the abstract concepts which call these phenomena to mind; and the words in which the concepts are expressed. To call forth a concept, a word is needed; to portray a phenomena, a concept is needed. All three mirror one and the same reality. -Traite Elementaire de Chimie (1789)
Antoine Laurent Lavoisier (1743-1794)

For the sake of persons of ... different types, scientific truth should be presented in different forms, and should be regarded as equally scientific, whether it appears in the robust form and vivid coloring of a physical illustration, or in the tenuity and paleness of a symbolic expression. -Address to the Mathematical and Physics Section, British Association for the Advancement of Science (1870) James Clerk Maxwell (1831-1879)

In our description of nature, the purpose is not to disclose the real essence of the phenomena, but only to track down, so far as it is possible, relations between the manifold aspects of our experience. -Atomic Theory and the Description of Nature (1934) Niels Bohr (1885-1962)

I would say these quotes reflect the fact that over the past few thousand years, many religious, philosophical and scientific systems have discovered and rediscovered a very basic dual process upon which they could build. Sometimes these processes were considered complementary, sometimes competing, sometimes only different facets of one process. In the martial arts we most often refer to these processes as yin and yang.

Some hope for determining a more objective truth of yin and yang has been given by recent research into how the human brain functions. It seems that the manner in which the two hemispheres interact hint that the concepts of yin and yang are mirrored by such related talents as: musical ability versus mathematical ability, or artistic ability versus analytic ability, and that these talents seem to reside in the different hemispheres. Such a simple analysis however ignores the different styles of learning and creating that individuals have, and it glosses over the crucial fact that all our major activities require the integrated use of processes that reside throughout the brain, not in just one hemisphere. Right-handed people don't use only our left hemisphere when threading a needle. Nor do we use only our right hemisphere to attend to the background activity of a crowd while actively interacting with a friend. Perceptions and skills that require our activity, although they may be statistically associated primarily with one hemisphere, are spread throughout both sides of the brain.

Manifestations of Yin and Yang

I believe that a more fruitful approach to understanding the nature of yin and yang is to seek their manifestations in global and focal attention, our primary perceptual processes. Be warned, only since the 1970s has it been respectable for cognitive psychologists to accept the possibility of these two attention states. However, neuroscientists and biologists who study microscopic properties of the brain have not yet developed experimental techniques to explore such phenomena. Therefore, they have not permitted such concepts to enter their disciplines. Given this split among otherwise distinguished sciences, it might seem difficult to take an unsupported strong stand on one side or the other. I believe that by objectively merging the scientific method with intuitions gained from "non-scientific" disciplines, we can forge a fruitful approach to understanding the reality of yin and yang.

These focal and global attention processes are quite familiar to karateka. Focal attention is required to precisely project all the dynamic power of a total body technique into a small target. Global attention is required to be aware of the changing patterns of an opponent's movements, as well as to one's own internal assessments of strategic patterns and possible actions to be taken immediately.

I have developed an educational methodology based on this dual process. This educational methodology is described in "Attention, Physics and Teaching," published in *Journal of Social and Biological Structures*, 4: 211-224 (1981). It has been tested in a series of courses in karate, academics, and fine arts at the University of California at San Diego Extension (1970-1972) and at an alternative high school from 1972-1978. In addition, it has also been used to generate much educational material, such as book manuscripts on tennis, chemistry, algebra and probability, and course material in over 30 disciplines, demonstrating that these processes of attention may rightfully be considered basic archetypes, or building blocks upon which we may better understand body disciplines, academics, fine arts, consciousness, and physical reality.

In this context, my recent research, in which I used very recent mathematical methods to describe the chemical and electrical brain activity associated with global and focal attention states, has been quite encouraging.

I have demonstrated that while millions of neurons can process large patterns of information such as might be contained in a descriptive paragraph, smaller sets of the same neurons can process sensory details of our space/time interactions such as a simple noun. This is analogous to, and perhaps the same as, how we use our global attention and focused attention.

This also addresses the issue of free will, relating the flow of information described by statistical mathematics to the choices made to effect decisions. The details of this analysis confirms that the "filters" alluded to earlier actually exist physically in the neurological processes of the brain.

Let me refer you to some papers that treat this more specifically in case you would like to read further on the subject. My first technical paper on this subject, "Statistical Mechanics of Neocortical Interactions. 1. Basic Formulation," appeared in *Physica D* 5: 83-107 (1982). "Statistical Mechanics of Neocortical Interactions-Dynamics of Synaptic Modification" appeared in *Physical Review A* 28: 395-416 (1983). "Statistical Mechanics of Neocortical Interactions-Derivation of Short-Term-Memory Capacity" is in *Physical Review A* 29: 3346-3358 (1984). "Statistical Mechanics of Neocortical Interactions-Stability and Duration of the 7 ± 2 Rule of Short-Term-Memory Capacity" is in *Physical Review A* 31: 1183-1186 (1985). "Statistical Mechanics of Neocortical Interactions-EEG Dispersion Relations" is in *IEEE Transactions on Biomedical Engineering* 32: 91-94 (1985). Two somewhat less technical Papers for the layperson-scientist, "Towards a Unified Brain Theory," appeared in *Journal of Social and Biological Structures* 4: 211-224 (1981), and "Statistical Mechanics of Neocortical Interactions-Statistical Processing of Short-Term Memory Patterns" is in *Journal of Inferential and Deductive Biology* (1985).

I will now sketch the recent biophysics that puts the concepts of yin and yang on a more secure scientific footing. I have tried to simplify the technical details. However, it is still difficult to read because it is a complicated subject as is karate. Still, even a rough reading will glean the sense of this exciting new field of statistical mechanics of neocortical interactions.

Neurons

On a time scale of $1/1000$ second, neurons of the brain communicate with each other by pulses of electric signals at neuronal sites called synapses. On one side of the synaptic gap, information is outputted by a neuronal branch called an axon; on the other side, the information is received by other neurons on neuronal branches called dendrites. A given neuron can receive input on its dendrites from hundreds of thousands of other neurons and then send out information to other neurons on its own axons.

Information is passed across the synaptic gap in the form of bundles of chemicals sent from the outputting axon to the dendrites of the receiving neuron. These chemicals change the electrical potential on the receiving neuron. If the potential is built up to a certain threshold within $5/1000$ second, that neuron will suddenly fire an impulse down its own axon. If this built up electric potential is not sufficient, nothing happens.

This transmitted information is similar to the "dots" and "dashes" of Morse code. Furthermore, some neurons can secrete excitatory chemicals, enhancing the overall positively charged state of the neuron, or other neurons can secrete inhibitory chemicals, detracting from this charged state. The probability of a neuron firing, therefore, is dependent on the state of all the other neurons.

The chemical-electrical nature of synapses is also highly "plastic." This means that lots of repeated firings, over relatively long periods of many seconds, create important changes in the structure of a synapse, and this affects the communication of that gap. This is how memory is coded into the brain. A synapse becomes "tuned" by the information flowing across it repeatedly. The spatial-temporal code of memory, therefore, is coded into the same microscopic complex of synapses that also process transitory information. Thus, the same synapses involved in glancing at a flower might also be involved in storing the visual memory of a car.

Mesocolumns

The human brain contains over ten billion neurons. Hundreds of neurons are grouped together throughout the brain forming structures called minicolumns. Thousands of minicolumns are clustered together to form macrocolumns, and so these macrocolumns contain many thousands of neurons. These are the domains within which most interactions between neurons occur. They are considered short-ranged interactions.

Longer-ranged interactions across larger areas of the brain (hundreds of millions of neurons) and between the brain and other organs are also very important in brain function. These longer-ranged interactions however, do not take any more time than the shorter-ranged interactions because of special transmission properties of long-ranged neurons. Information carried by long neurons from distant regions become available within the time spans required for short-ranged interactions, so the processing occurs concurrently.

For the purpose of studying the function of minicolumns and macrocolumns, I use a concept called the mesocolumn. The mesocolumn is defined as the flow of information from the larger macrocolumn to the smaller minicolumn to the larger macrocolumn, etc.

Validity of the Mesocolumn

This concept has proved itself valid and useful. Applying statistical mechanics to study the mesocolumn, I have actually "derived" the short term memory (STM) rule mentioned in the first chapter of this book. It is well established that human STM is limited to the retention of seven plus or minus two, e.g., five to nine unrelated items. This limit on the capacity of STM is true even for exceptional memory performers who apparently are more efficient in "chunking" large patterns of information into single items, and who also may be more efficient in coding and storing long-term memory (LTM). For further reading see: "The Magical Number Seven, Plus or Minus Two," in *Psychological Review* 63: 81-97 (1956), by G.A. Miller; and "Exceptional Memory," by K.A. Ericsson and W.C. Chase in *American Scientist* 70: 607-615 (1982); and my "Attention, Physics and Teaching," mentioned earlier.

The mathematics and physics developed in my previous papers describe a "map" of neuronal firing patterns. The neuronal landscape has directions of excitatory and inhibitory firings upon which the probabilities of their occurrence are built up, similar to the mountains and valleys of a landscape. It turns out that for numbers appropriate to electrical and chemical activity of the brain, there are only at most nine or so valleys of firings. These valleys are "traps" that can hold memories for several seconds, similar to a rolling ball becoming trapped in a valley in real space.

Mesocolumn Reveals Yin Processes

The mesocolumn concept has also yielded other important findings. Using probability mathematics to analyze these flows of information has revealed that information such as that processed by focal attention can be stored in the brain for short times up to several seconds without changes in synaptic structure. Only longer time memory storage requires plastic synaptic changes.

Furthermore, because certain regional structures, e.g., visual, auditory, somatic, motor centers, are each composed of tens of thousands of mesocolumns, the same mathematics can be extended to study the probabilistic flows of larger patterns of information involving these large regions. These patterns of information are also processed by global attention. Since synaptic interactions are probabilistic this means that there are always choices to be made as to what information finally effects decisions and actions. For example, in sparring, several (barely) conscious strategies might be viable at any given moment, but only one is chosen. This often requires decision making on such a short time scale that the choice is not made analytically, but probabilistically, a choice which we might infer felt "intuitive."

Conclusion

Thus, in summary, whereas yang processes have been widely accepted by scientists as neural mechanisms of processing detailed information, this new work supports the physical existence of yin processes as statistically global neural mechanisms that process patterns of information.

Although it may "seem" like a lot of scientific work has gone into deriving something you think you are already familiar with memory, consider this project in a different light: for the first time, by using modern scientific methods to interpret these properties of synaptic interactions, aspects of human consciousness have been derived from neuronal firing patterns. The same scientific methods that have given us insights into our physical universe, often accompanied by great technological advances, now also give us a better understanding of our conscious minds! We all have a vital stake in how we use this gained knowledge.